



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 26, 2004

U.S. Army Corps of Engineers
Raleigh Field Office
6508 Falls of the Neuse Road
Suite 120
Raleigh, NC 27615

Attention: Mr. John Thomas
NCDOT Coordinator

Subject: **Application for Nationwide Permit 23 and 33** for the proposed replacement of Bridge No. 84 over Jones Creek on SR 2579 in Rockingham County, Federal Aid Project No. BRZ-2579(1), State Project No. 8.2511001, WBS Element: 33236.1.1, Division 7, TIP B-3696

Dear Sir:

Please find enclosed three copies of the Categorical Exclusion (CE) Document as well as the Pre-construction Notification, 1/2 size plans, permit drawings Natural Resources Technical Report (NRTR) and a United States Fish and Wildlife Service (USFWS) concurrence request for the above referenced project. The NCDOT proposes to replace the 53-foot Bridge No. 84 on SR 2579 over Jones Creek with a new 95-foot single-span reinforced concrete box-beam bridge in the same location. In addition, the NCDOT plans to replace the 60-inch corrugated metal cross pipe which carries an unnamed tributary (UT) to Jones Creek under SR 2579 and is approximately 400 feet east of the bridge. This cross pipe will be replaced with a 96-inch corrugated steel pipe. There will be 0.008 acre of temporary fill and 30 ft of temporary stream impact due to the stream diversion and replacement of the pipe. The bridge replacement will have no impacts to jurisdictional waters. Traffic will be detoured off-site during construction at both locations.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: The project is located in the Roanoke River Basin (ROA03 Subbasin) with a Hydrological Unit Code of 03010104. The proposed bridge (Site 1) and pipe (Site 2) replacements are located over Jones Creek and UT Jones Creek, respectively. Jones Creek flows from the southwest and meets with UT Jones Creek on the northeast side of the bridge.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1500
FAX: 919-715-1501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

Both creeks have been assigned a Division of Water Quality best usage classification of "C". Class "C" refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation and agriculture. There are no wetlands in the project area.

Temporary Impacts: Temporary impacts for this project are associated with the pipe replacement. The pipe replacement at Site 2 will be the same length as the existing pipe culvert. The new pipe will be buried one foot below the streambed. Approximately 15 feet upstream and 15 feet downstream of the structure there will be temporary impacts from stream diversion while installing the culvert. There will also be 0.008 acre of temporary fill in the surface water. Traffic will be detoured off-site during pipe installation. NCDOT's Best Management Practices, dated August 2003, for pipe and flow diversion will be followed during replacement of the pipe on UT Jones Creek.

- Schedule: All steps will be taken to minimize stream impacts for UT Jones Creek. NCDOT will request the contractor to complete construction in a timely manner. The project schedule calls for a Let date of October 19, 2004 with a date of availability of November 17, 2004.
- Restoration Plan: The material used for fill to control erosion within the banks of UT Jones Creek will be removed after the purpose has been served. The contractor will be required to submit a reclamation plan for removal of and disposal of all material off-site.

Utility Impacts: There will be no sewer, water, electric or other utility impacts due to this bridge replacement project.

Bridge Demolition: Bridge No. 84 has three spans totaling 53 feet in length. The entire bridge is composed of timber. Therefore, bridge No. 84 will be removed without dropping any of its components in the surface waters. NCDOT's Best Management Practices for Bridge Demolition and Removal will be followed.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003 the US Fish and Wildlife Service (USFWS) lists two federally protected species for Rockingham County: smooth coneflower and the James spinymussel. No species have been added to or deleted from this list since the completion of the referenced document. Field surveys were conducted in 2001 and 2003 for mussels and 2002 for the plants. A biological conclusion of "May affect, Not Likely to Adversely Affect" is proposed for both species based on habitat found although no species found. NCDOT is currently awaiting a concurrence from the US Fish and Wildlife (see attached request for concurrence, letter dated May 13, 2004).

The USFWS listing of protected species and current Biological Conclusions are listed in the following table.

Federally Protected Species for Rockingham County

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
James spiny mussel	<i>Pleurobema collina</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect
Smooth coneflower	<i>Echinacea laevigata</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect

Endangered denotes a species that is in danger of extinction throughout all or a significant portion of its range.

AVOIDANCE AND MINIMIZATION

Avoidance examines all appropriate and practicable possibilities of averting impacts to “Waters of the United States”. The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional stages; minimization measures were incorporated as part of the project design. The impacts to Jones Creek are minimized by replacing Bridge No. 84 with a new bridge that will span the creek at approximately the same location and roadway elevation. Impacts are further minimized to the Jones Creek UT by burying the invert of the new pipe one foot beneath the streambed.

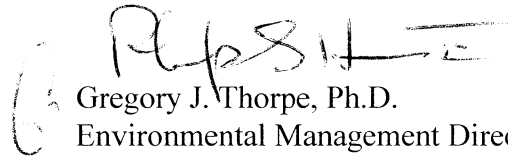
REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the temporary stream diversion will be authorized under Section 404 Nationwide Permit 33. We are therefore requesting the issuance of a Nationwide Permit 33 for this diversion. The remaining aspects of the project are being processed by the Federal Highway Administration as a “Categorical Exclusion” in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3403 and 3366 will apply to this project. All general conditions of the Water Quality Certifications will be met. Therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their notification.

Thank you for your time and assistance with this project. Please contact Carla Dagnino at (919) 715-1456 if you have any questions or need any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregory J. Thorpe".

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

w/attachment

Mr. John Hennessy, Division of Water Quality
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design

w/o attachment

Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, III, FHWA
Mr. J. M. Mills, P.E., Division 7
Mr. Jerry Parker, Division 7 DEO
Ms. Karen Capps, PDEA Project Planning Engineer

Office Use Only:

Form Version May 2002

USACE Action ID No. _____**DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

☒ Section 404 Permit☒

Riparian or Watershed Buffer Rules

☐ Section 10 Permit☐

Isolated Wetland Permit from DWQ

☒ 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested:
- NW23, NW33.

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:
- ☒

4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here:
- ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:
- ☐

II. Applicant Information

1. Owner/Applicant Information

Name: NC Department of TransportationMailing Address: 1548 Mail Service CenterRaleigh, NC 27699-1548Telephone Number: (199)-733-3141Fax Number: (919)-715-1501

E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: NA

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 84 over Jones Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3696
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Rockingham Nearest Town: Reidsville
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers, landmarks, etc.): From Reidsville – take 87 east to US158. Take US158 and get off at the Brooks Road intersection (SR2579) and bridge No. 84 will be the first bridge crossing.
5. Site coordinates, if available (UTM or Lat/Long): 36 21.20'N/ 79 36.56'W
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): 0.4 mile * 80 feet = 32 acres
7. Nearest body of water (stream/river/sound/ocean/lake): Jones Creek
8. River Basin: Roanoke River Basin
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The project area lies in the Piedmont Physiographic Province and is mainly forested with the exception of the maintained roadside.

10. Describe the overall project in detail, including the type of equipment to be used: The project will consist of replacing the old bridge over Jones Creek with a new single-span reinforced concrete box-beam bridge in the same location. In addition, the NCDOT plans to replace the corrugated metal cross pipe culvert located east of the bridge with a new corrugated steel pipe culvert. Construction equipment will consist of heavy duty trucks, earth moving equipment, cranes, etc.

11. Explain the purpose of the proposed work: The existing bridge is considered structurally deficient and obsolete. The replacement of the bridge will result in a safer and more efficient use for traffic.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

NA

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

NA

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be

included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

Provide a written description of the proposed impacts: There will be 0.0079 acre of temporary fill and 30 feet of stream impacts due to the stream diversion and the replacement of the culvert.

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
NA					

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0 acre

Total area of wetland impact proposed: 0 acre

2. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
2	Diversion (T)	30	UT Jones Creek	7 feet	Perennial
2	Fill (T)	0.0079	UT Jones Creek	7 feet	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 30 feet (all temporary)

3. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
NA				

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

4. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): NA

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): NA

Size of watershed draining to pond: NA Expected pond surface area: NA

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

The new bridge will be replace on same location and will span the creek with no impacts associated with the new construction. The new pipe culvert at 96 inches will replace the old 60 inch pipe and be buried one foot below the streambed to insure further stability of the pipe and water passage.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

NA- no mitigation needed for 50 ft of temporary stream impacts

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): NA

Amount of buffer mitigation requested (square feet): NA

Amount of Riparian wetland mitigation requested (acres): NA

Amount of Non-riparian wetland mitigation requested (acres): NA

Amount of Coastal wetland mitigation requested (acres): NA

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)?

Yes ☐ No ☒ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	13679	3	
2	8365	1.5	
Total	22044		

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or

Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

NA

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

NA

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐

No ☒

Is this an after-the-fact permit application?

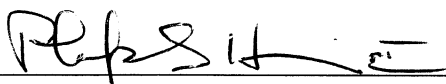
Yes ☐

No ☒

XIV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

NA



Applicant/Agent's Signature

5/26/09

Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 13, 2004

Gary Jordan
US Fish and Wildlife Service
PO Box 33726
Raleigh, NC 27636-3726

Subject: Biological Concurrence Request for the proposed replacement of Bridge No. 84 on SR 2579 over Jones Creek in Rockingham County. State Project No. 8.2511001, Federal Aid Project No. BRZ-2579(1), TIP No. B-3696, Division 7

Dear Mr. Jordan:

The purpose of this letter is to summarize federally protected species surveys to date and to request concurrence from the U.S. Fish and Wildlife Service (Service) pursuant to Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*) (ESA).

The Natural Resources Technical Report (NRTR) for this project was completed in August 2002. To support the NRTR document, field surveys were conducted in 2001 for mussels and 2002 for the plants. Biological conclusions of "No Effect" were determined for each species listed at the time of the NRTR. (This conclusion was based on no species found.) According to the USFWS January 29, 2003 list of endangered and threatened species, no new species have been added or deleted from the list. The USFWS listing of protected species and current Biological Conclusions are listed in the following table.

Federally Protected Species for Rockingham County

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
James spiny mussel	<i>Pleurobema collina</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect
Smooth cone flower	<i>Echinacea laevigata</i>	Endangered	YES	May Affect, Not Likely to Adversely Affect

Suitable habitat exists for smooth coneflower in the open woodlands, roadsides and clearcuts in the project study area. Habitat may also exist for mussels in Jones Creek. The site was revisited in September 2003 by The Catena Group to conduct a freshwater mussel survey. No species were found during the most recent site visits therefore a biological conclusion of "May Affect, Not Likely to Adversely Affect" was determined for both the smooth coneflower and the James Spiny Mussel.

SURVEY METHODOLOGY

A plant-by-plant survey was conducted for the smooth coneflower on July 11, 2002 during the optimal survey window. Prior to the survey, the investigators visited a known population of the smooth coneflower to have a fresh visual of the plant that will be surveyed. The survey for the coneflower consisted of a search for single flowers with drooping pink/purple petals on a long stem. The smooth coneflower was not observed during the site investigation in the preferred habitat within the project study area. A total of 5 person-hours were spent conducting the survey.

The Catena Group conducted a freshwater mussel survey in September 2003. (Please see attached report.) Visual and tactical survey methods were used. Mussel surveys were conducted 400 meters downstream of the project crossing and 100 meters upstream of the project crossing. No mussels were observed in the entire surveyed area. A total of 3 person-hours were spent conducting the survey.

QUALIFICATIONS OF PRINCIPAL INVESTIGATOR FOR PLANT SURVEY

Corri Faquin, Environmental Scientist
LandMark Design Group, Inc., April 2001 to August 2002
B.S. Natural Resources: Ecosystem Assessment
Minor in Environmental Science, N.C. State University 2000
B.S. Biological Science, N.C. State University, 2001
Associated Scientist, Biolex, Inc., Pittsboro, NC, January 2000 to March 2001
Laboratory Technician, Department of Forestry, N.C. State University, January 1999 to May 2000

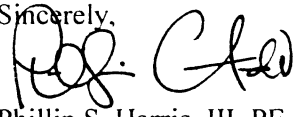
QUALIFICATIONS OF PRINCIPAL INVESTIGATOR FOR MUSSEL SURVEY

Tim Savidge, Environmental Supervisor
The Catena Group, October 2002 –present
Environmental Specialist, NCDOT, 1992-2002
BS Biology (Guilford College), MS Marine Biology/Biological Oceanography (UNC Wilmington)
Expertise: NEPA Documentation, Terrestrial and Aquatic Ecology, Freshwater mussel biology, Protected species surveys, freshwater mussel surveys (NC-2003ES-58), Section 7 coordination, wetland delineation

Based on the above surveys conducted in 2002 and 2003, the project area does not contain any federally-listed species known to occur in Rockingham County. The NCDOT concludes that the proposed project will have a biological conclusion of "May Affect, Not Likely to Adversely Affect"

for the smooth coneflower and the James Spiny Mussel. We believe that the requirements of Section 7(a)(2) of the ESA have been satisfied and hereby request your concurrence.

Thank you for your time. Please contact Carla Dagnino at (919) 715-1456 if you have any questions concerning this request.

Sincerely,

~~For~~ Phillip S. Harris, III, PE.
Manager, Office of Natural Environment

Attachment

cc: Karen Capps, Project Engineer, PDEA

✓ B-3696 File#



The
Catena
Group

410-B Millstone Drive
Hillsborough, NC 27278
(919) 732-1300

Freshwater Mussel Survey

SR 2579 over Jones Creek
TIP B-3696
Rockingham County
North Carolina

Prepared For:

North Carolina Department of Transportation
PDEA – Office of Natural Environment
1598 Mail Service Center
Raleigh, NC 27699-1598

Prepared By:

The Catena Group
Hillsborough, North Carolina

February 18, 2004

A handwritten signature in black ink, appearing to read "Timothy W. Savidge". The signature is written over a horizontal line.

Timothy W. Savidge

INTRODUCTION

The North Carolina Department of Transportation proposes to replace bridge # 84 over Jones Creek on SR 2579 in eastern Rockingham County, North Carolina, TIP No. B-3696 (Figure 1). Jones Creek occurs within the Dan River Subbasin of the Roanoke River Basin. The federally endangered James spinymussel (*Pleurobema collina*) is known to occur in the Dan River Subbasin. Other rare freshwater mussel species known to occur in the Dan River Subbasin in Rockingham County include the green floater (*Lasmigona subviridis*), and the notched rainbow (*Villosa constricta*). The green floater is a Federal Species of Concern and is considered Endangered in North Carolina. The notched rainbow is considered Special Concern.

WATERS IMPACTED: Jones Creek

The proposed project will impact Jones Creek, which arises approximately 2.5 miles west of the project crossing and flows northeast into Hogans Creek 5 miles downstream of the crossing. Hogans Creek flows another 18 miles to the northeast before entering the Dan River in northern Caswell County.

The stream channel in the surveyed area is very incised with a stream width of approximately 5 meters (16.4 feet) and banks approximately 3.5 meter (11.5) high. The streambanks are unstable and severely eroded in places. The substrate within the stream is predominately shifting sand and gravel with clay banks.

SPECIES DESCRIPTION

Pleurobema collina (James spinymussel)

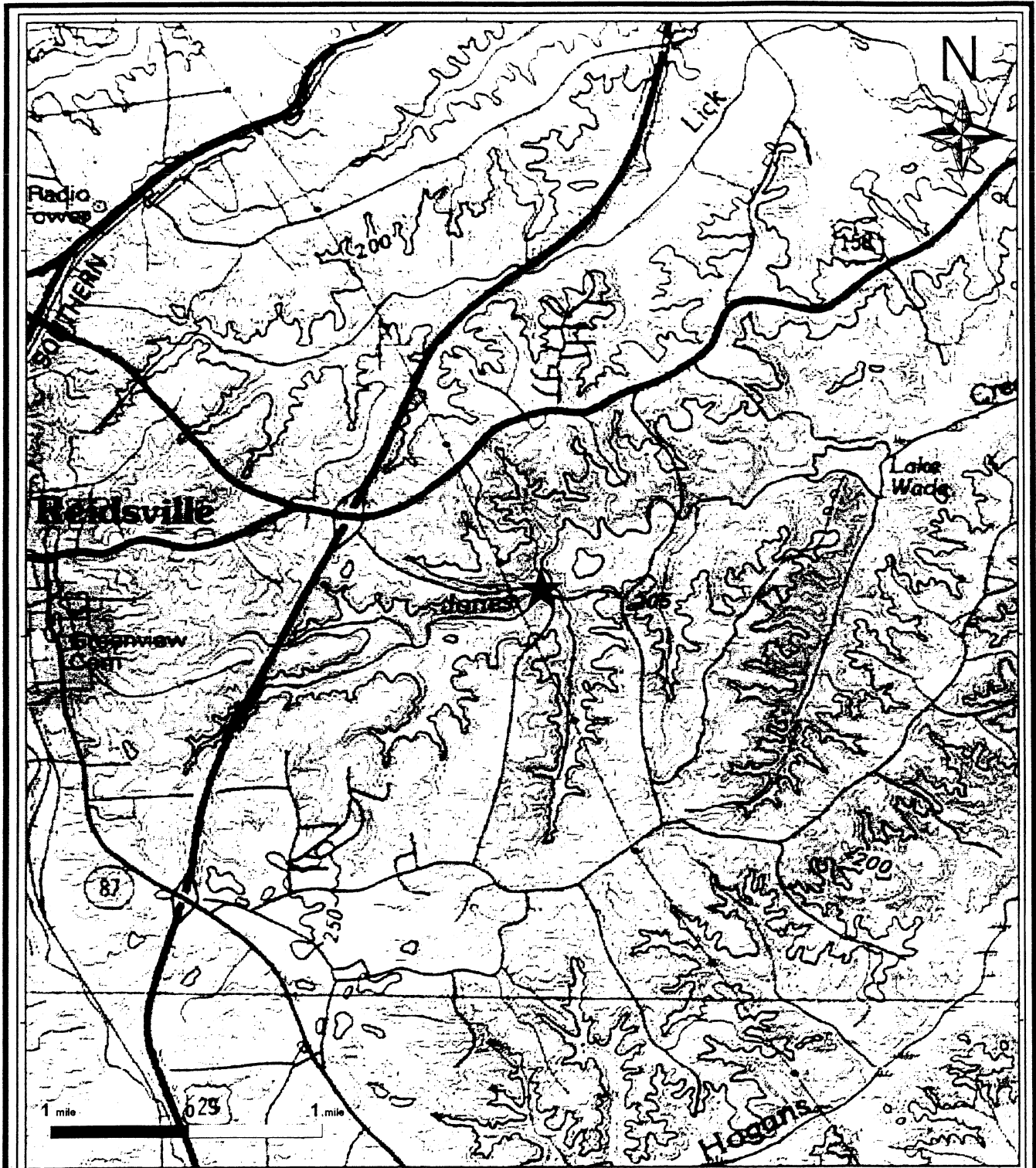
Status: Endangered

Listed: 7/22/88

Characteristics

The James spinymussel (JSM) was discovered in the Calfpasture River (of the James River Basin) by T. A. Conrad and originally described as *Unio collinus* (Conrad 1837). Various workers (See USFWS 1990 for synonyms) have subsequently placed this species in a number of different genera. Turgeon et al. (1988) placed the James spinymussel in the genus *Pleurobema*. The taxonomic history of this species is described fully in Clarke and Neves (1984).

The JSM is a small mussel that is reported to reach a maximum size of 70 mm. A specimen collected in the Dan River was measured at 74 mm in length. The shells of small individuals (<40 mm) are subrhomboid in shape with an obliquely subtruncated posterior with widely spaced concentric striations. The periostracum (outside layer of shell) is shiny and straw yellow with prominent growth rings. Faint brownish rays are rarely present. One to three short, but prominent spines are occasionally present on each valve. With age, the shell becomes more ovate, or even arcuate, the periostracum becomes brownish to black and any spines that were once present are lost. Their beaks



**The
Catena
Group**

Project Location (★)

SR 2579 (Brooks Road) over
Jones Creek, B-3696
Rockingham County, North Carolina

Date:
February 2004

Scale:
As Shown

Job No.:
3012

Figure

1

are typically eroded and only slightly elevated above the hinge line, if elevated at all. The nacre (inner shell) is white with occasional bluish suffusions. The foot and mantle of live specimens are light orange in color. (USFWS 1990, Clarke and Neves 1984, Johnson 1970). Internal anatomy is detailed in Clarke and Neves (1984).

The JSM and the Tar spiny mussel (TSM) share many morphological traits, but are clearly distinct species. The TSM has been described as having intermediate characteristics between the small, short-spined JSM and the large, long-spined Altamaha spiny mussel (USFWS 1992a, USFWS 1990). Internal anatomical differences between the two species are described in Clarke and Neves (1984). Tar spiny mussels can have up to 12 spines (USFWS 1992) and tend to have spines more often than JSMs. Clarke and Neves (1984) state that most specimens of JSM “never develop spines”. The JSM observed from the Dan River and Mayo River (>250 individuals, Tim Savidge Personal Observations) more often than not have spines present and as many as 8 spines have been observed on one individual. Spine length in these specimens observed is also greater than has been reported in specimens from the James River system. These differences between the Dan/Mayo River and James River populations suggest that spine number and length may be more related to environmental factors than genetic traits.

Knowledge of the reproductive biology is limited to thesis research at Virginia Polytechnic Institute and State University (Hove 1990, Hove and Neves 1989). Like nearly all freshwater mussel species the reproductive strategy of the JSM involves a larval stage (glochidium), that becomes a temporary obligatory parasite on a fish. Many mussel species have specific fish hosts that must be present to complete their life cycle. Based upon laboratory infestation experiments, Hove (1990) identified seven fish species all in the family Cyprinidae (minnows) as potential fish hosts for the JSM. McMahon and Bogan (2001) and Pennak (1989) can be consulted for a general overview of freshwater mussel reproductive biology.

Distribution and Habitat Requirements

Previously this mussel was believed to be endemic to the James River system, with a widespread distribution within the basin (USFWS 1990, Clarke and Neves 1984). When the Recovery Plan for this species was adopted, it was believed to have been extirpated from 90% of its historic distribution. Since the discovery in the Dan River in the fall of 2000, extensive surveys for mussel fauna have been conducted in the Dan River drainage in Stokes, Rockingham and Caswell Counties North Carolina.

The apparent range (~ 36 river-miles) of the spiny mussel in the Dan River extends from the North Carolina/Virginia border near the first bridge crossing in North Carolina (Flippin Rd, SR 1416) in northwest Stokes County downstream to at least SR 1695 (Dodgetown Road), below the town of Danbury in central Stokes County. The JSM has not been found in the Dan River in Rockingham and Caswell Counties. The species has also been found in the South Fork Mayo River in Patrick County Virginia downstream into the Mayo River in Rockingham County North Carolina (an approximately 16-mile reach). Because it was discovered only recently in the Dan River

drainage, further research is needed to determine the historic distribution of the JSM in the Dan River drainage.

A description of chemical and physical conditions at sites currently and historically supporting the JSM is given in Clarke and Neves (1984) and Boss and Clench (1967). The habitat is generally described as runs with moderate current, with sand, gravel and cobble substrata. Individuals from the Dan/Mayo population have been found in a variety of substrates from silt/sand, to sand, gravel, cobble, bedrock crevices and sand surrounded by boulders, with a variety of flow patterns from slack pools, to runs with moderate to swift currents (personal observations). The hardness of the water is believed to be a significant requirement for this species, with a minimum hardness value of (>50 ppm CaCO₃) (Clarke and Neves 1984).

Threats to Species

The cumulative effects of several factors, including sedimentation, point and non-point discharge, stream modification (impoundment's, channelization etc.), coupled with the apparent restricted range, are believed to have contributed to the decline of this species throughout its range (USFWS 1990).

When mussel populations are reduced to a small number of individuals and are restricted to short reaches of isolated streams, they are extremely vulnerable to extirpation from a single catastrophic event or activity (Strayer et al. 1996). Catastrophic events may consist of natural events such as flooding, or drought as well as human influenced events such as toxic spills associated with highways or railroads.

Siltation resulting from improper erosion control of various land usage, including agricultural, forestry and development activities has been recognized as a major contributing factor to degradation of mussel populations (USFWS 1996). Siltation has been documented to be extremely detrimental to mussel populations by degrading substrate and water quality, increasing potential exposure to other pollutants and by direct smothering of mussels (Ellis 1936, Marking and Bills 1979). Sediment accumulations of less than 1 inch have been shown to cause high mortality in most mussel species (Ellis 1936). In Massachusetts, a bridge construction project decimated a population of the endangered dwarf-wedge mussel (*Alasmidonta heterodon*), because of accelerated sedimentation and erosion (Smith 1981).

Sewage treatment effluent has been documented to significantly affect the diversity and abundance of mussel fauna (Goudreau et al. 1988). Goudreau et al. (1988) found that recovery of mussel populations might not occur for up to two miles below points of chlorinated sewage effluent. Clarke and Neves (1984) suggested that sewage and industrial pollution might have contributed to the extirpation of the JSM from the North River in Virginia. Based on field observations the municipal wastewater treatment plants located in Danbury on the Dan River and in Stoneville on the Mayo River appear to contribute to a reduction of mussels, including the JSM in the respective waterbodies (personal observations).

The impact of impoundments on freshwater mussels has been well-documented (USFWS 1992a, Neves 1993). Construction of dams transforms lotic habitats into lentic habitats, which results in changes with aquatic community composition. These changes associated with inundation adversely affect both adult and juvenile mussels as well as fish community structure, which could eliminate possible fish hosts for glochidia (Fuller 1974). Two impoundments, Avalon Dam and Mayo Dam are located on the Mayo River. These two facilities, created for hydroelectric purposes, have effected distribution of mussels including the JSM in the Mayo River (personal observations).

The introduction of exotic species such as the Asiatic clam (*Corbicula fluminea*) and zebra mussel (*Dreissena polymorpha*) has also been shown to pose significant threats to native freshwater mussels. The Asiatic clam is now established in most of the major river systems in the United States (Fuller and Powell 1973), including those streams still supporting surviving populations of the JSM. Concern has been raised over competitive interactions for space, food and oxygen with this species and native mussels, possibly at the juvenile stages (Neves and Widlak 1987, Alderman 1997). The Asian clam was observed to be abundant within the Dan and Mayo Rivers (personal observations).

The zebra mussel, native to the drainage basins of the Black, Caspian and Aral Seas, is an exotic freshwater mussel that was introduced into the Great Lakes in the 1980s and has rapidly expanded its range into the surrounding river basins, including those of the South Atlantic slope (O'Neill and MacNeill 1991). This species competes for food resources and space with native mussels, and is expected to contribute to the extinction of at least 20 freshwater mussel species if it becomes established throughout most of the eastern United States (USFWS 1992b). This species has not been reported from any waterbody that supports the JSM.

SURVEY EFFORTS

Jones Creek is a perennial stream that could potentially provide habitat for the James spinymussel and thus surveys for this and other mussel species were conducted for NCDOT.

Pre Survey Investigation

Prior to conducting in-stream surveys, a review of any survey work that had taken place in Jones Creek was performed. Sources consulted include the North Carolina Natural Heritage Program (NHP) systematic inventory (database) of rare plant and animal species, and the North Carolina Wildlife Resources Commission. The pre-survey searches did not reveal any records of rare freshwater mussel species from Jones Creek.

Mussel Surveys for this Project

Tim Savidge, Tom Dickinson and Shannon Simpson of The Catena Group, Inc., visited Jones Creek on September 26, 2003. Mussel surveys were conducted from a

point approximately 400 meters downstream of the project crossing to a point approximately 100 meters upstream.

Methodology and Results

Visual surveys were conducted using visual (batiscope) and tactile methods. The water was turbid during the site visit, but not to the level to preclude visual surveys. Water level ranged from <6 inches to 3.0 feet, averaging 2 foot. No mussels were observed in the entire surveyed reach, in 3 person-hours of survey time. The introduced Asian clam (*Corbicula fluminea*) is present but not abundant in the creek.

Discussion

No mussel species were found in Jones Creek during the survey efforts. It is very unlikely that any mussel species will be impacted by the proposed action. It can be concluded that project construction is "Not Likely to Adversely Affect" the James spinymussel. It is recommended that NCDOT receive concurrence from the U. S. Fish and Wildlife Service with these findings.

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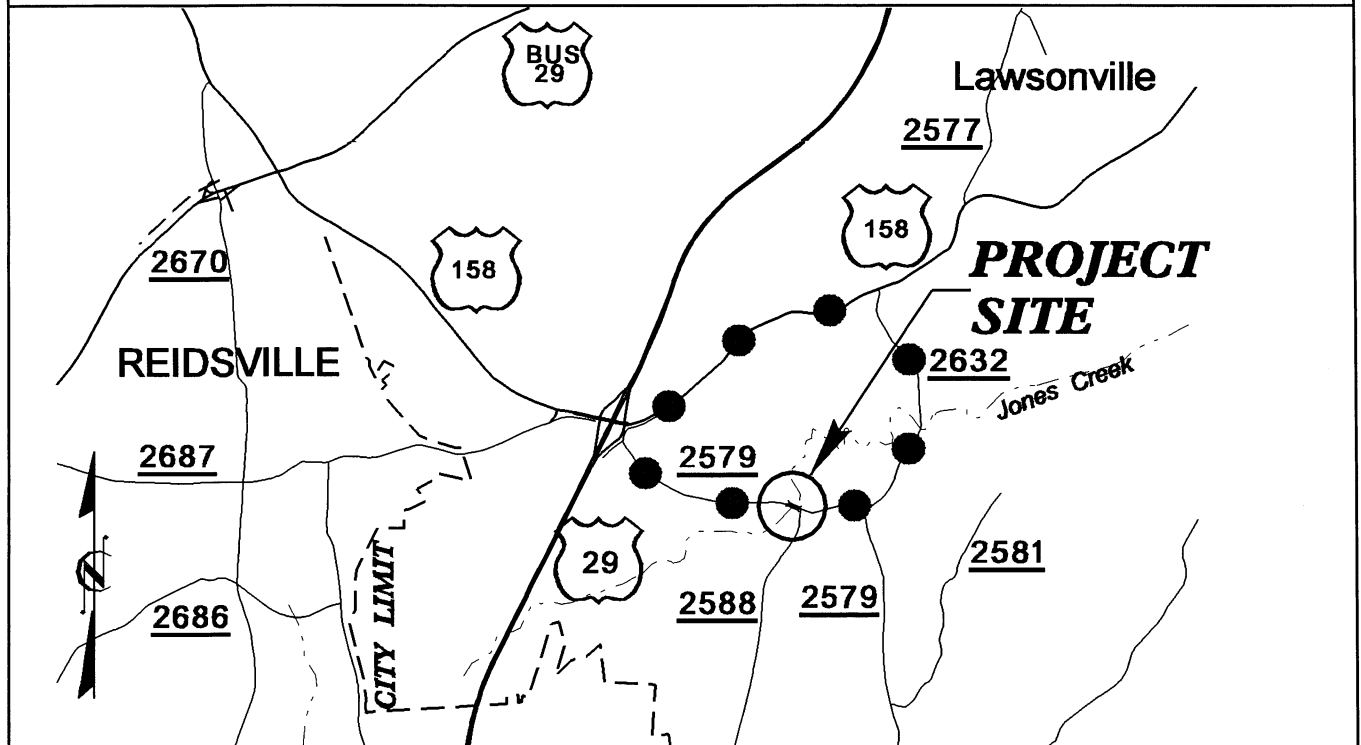
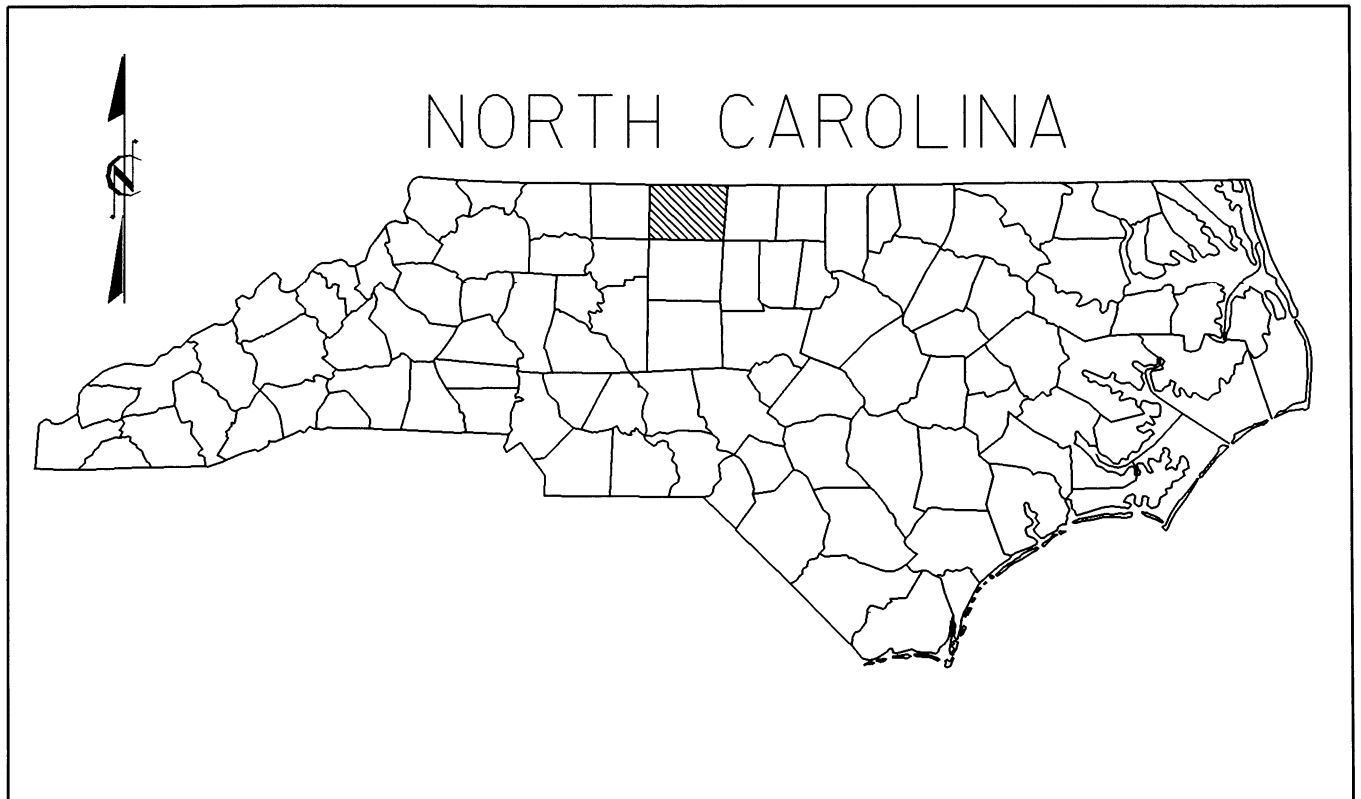
Turgeon, D. D., A. E. Bogan, E. V. Coan, W. K. Emerson, W. G. Lyons, W. L. Pratt, C. F. E. Roper, A. Scheltema, F. G. Thompson, and J. J. Williams. 1988. Common and scientific names of aquatic invertebrates of the United States and Canada: Mollusks. Am. Fisheries Soc. Spec. Publ.16. Bethesda, Md. 227 pp.

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VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PROJECT: 8.2511001 (B-3696)

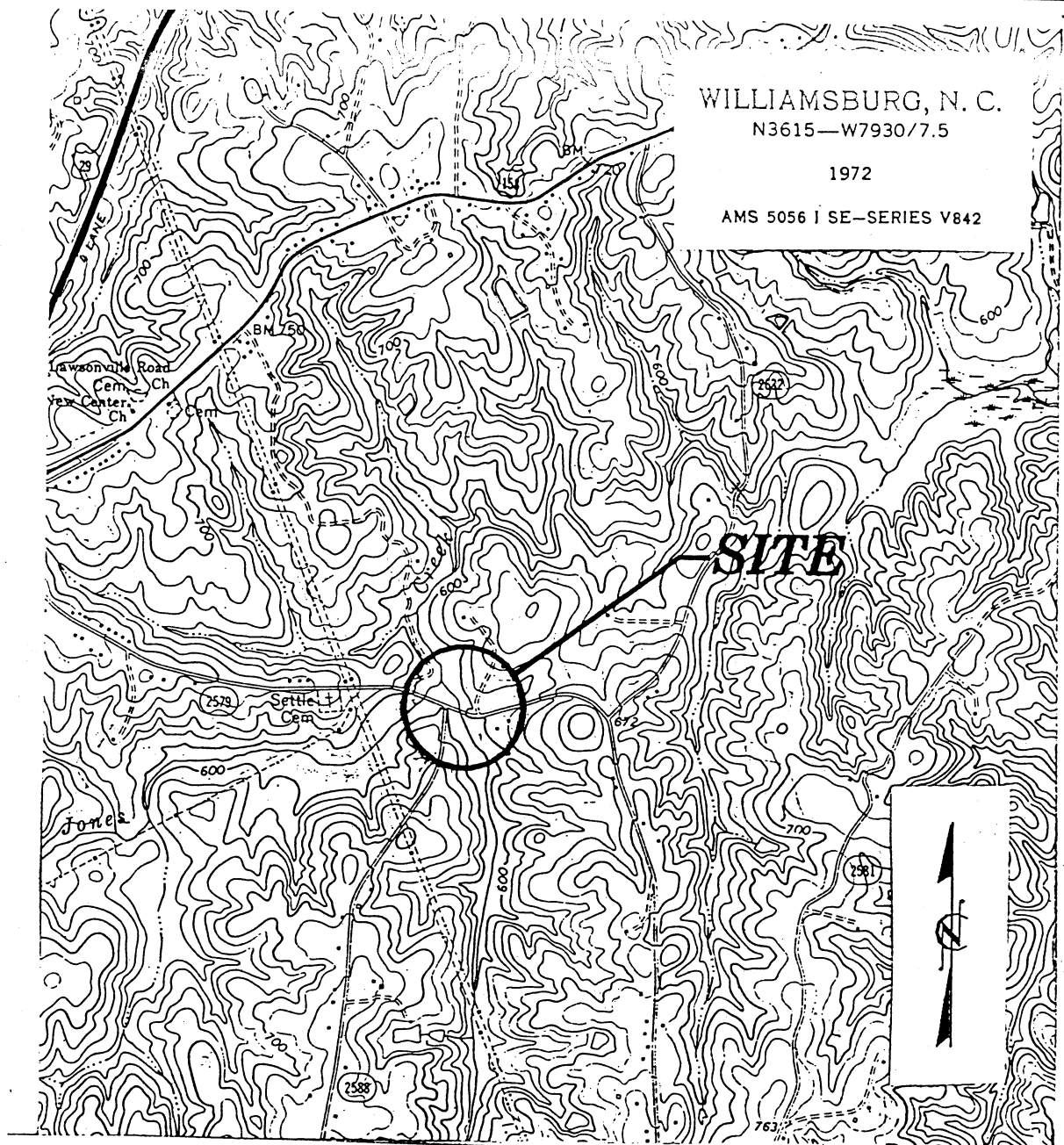
**BRIDGE OVER JONES CREEK
ON SR 2579 BETWEEN US 158
AND SR 2588**

WILLIAMSBURG, N. C.

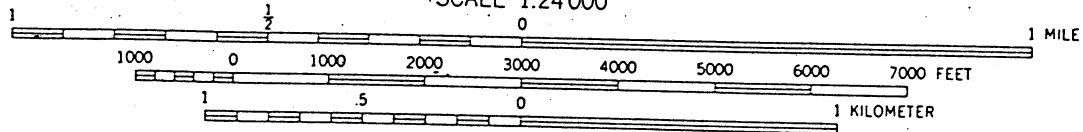
N3615—W7930/7.5

1972

AMS 5056 I SE—SERIES V842



SCALE 1:24 000



CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

VICINITY MAP

NCDOT

DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

PROJECT: 8.2511001 (B-3696)

**BRIDGE OVER JONES CREEK
ON SR2579 BETWEEN US 158
AND SR 2588**

8/17/99

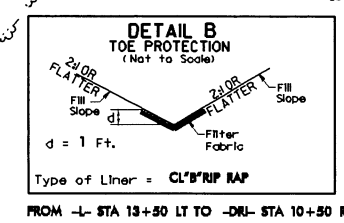
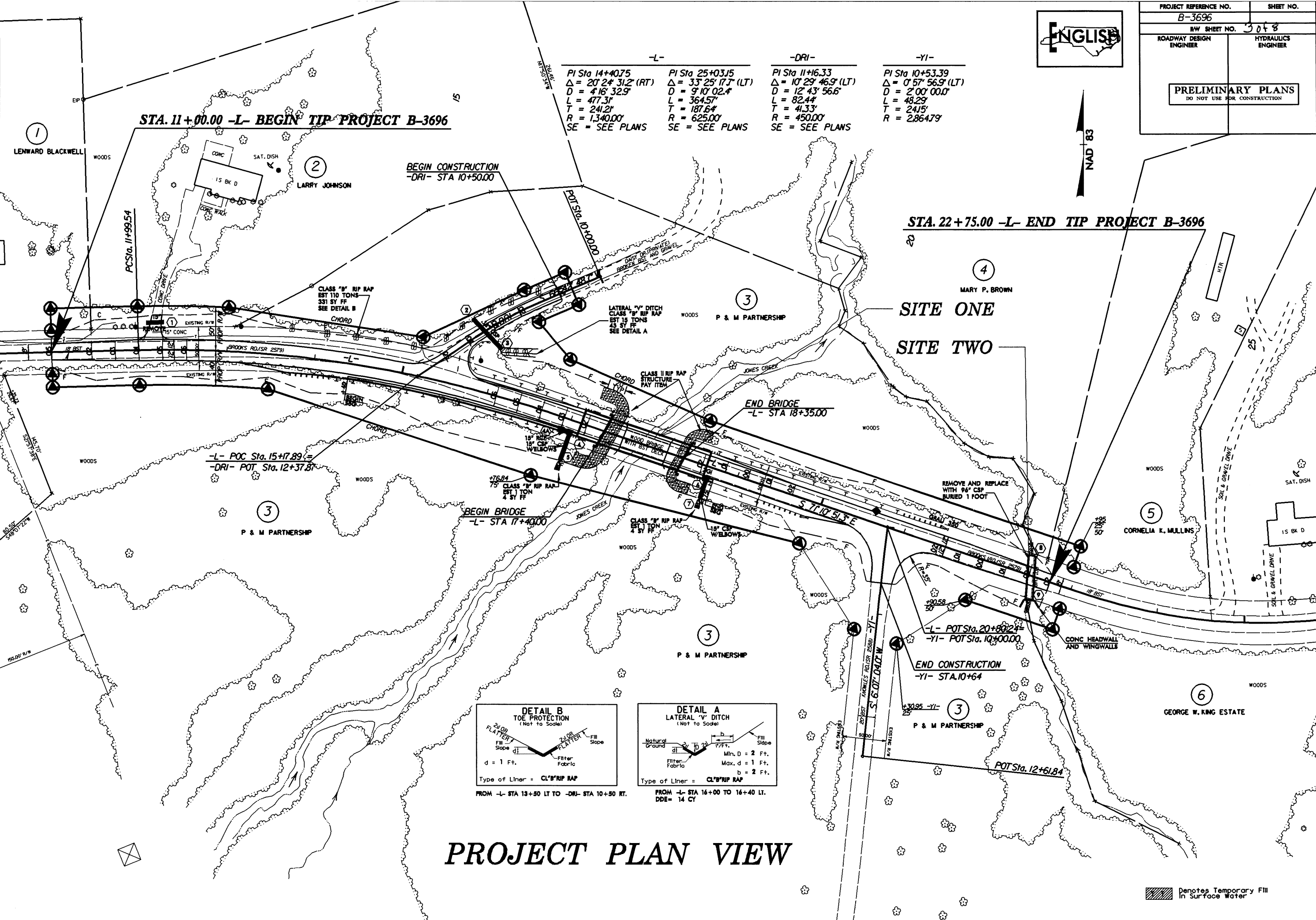
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REVISIONS

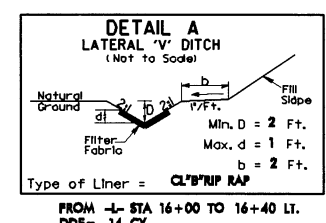


PROJECT REFERENCE NO.	SHEET NO.
B-3696	3048
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-	-DRI-	-YI-
PI Sta 14+40.75 $\Delta = 20' 24" 31.2'$ (RT) $D = 4' 16" 32.9'$ $L = 477.3'$ $T = 241.2'$ $R = 1,340.00'$ SE = SEE PLANS	PI Sta 25+03.15 $\Delta = 33' 25' 17.7'$ (LT) $D = 9' 10" 02.4'$ $L = 364.5'$ $T = 187.6'$ $R = 625.00'$ SE = SEE PLANS	PI Sta 11+16.33 $\Delta = 10' 29' 46.9'$ (LT) $D = 12' 43' 56.6'$ $L = 82.44'$ $T = 41.33'$ $R = 450.00'$ SE = SEE PLANS
PI Sta 10+53.39 $\Delta = 0' 57' 56.9'$ (LT) $D = 2' 00" 00.0'$ $L = 48.29'$ $T = 24.15'$ $R = 286.479'$		



FROM -L- STA 13+50 LT TO -DRI- STA 10+50 RT.



FROM -L- STA 16+00 TO 16+40 LT.
DDE = 14 CY

PROJECT PLAN VIEW

Denotes Temporary Fill
in Surface Water

5/28/99

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R:\Hydraulics\1100000000

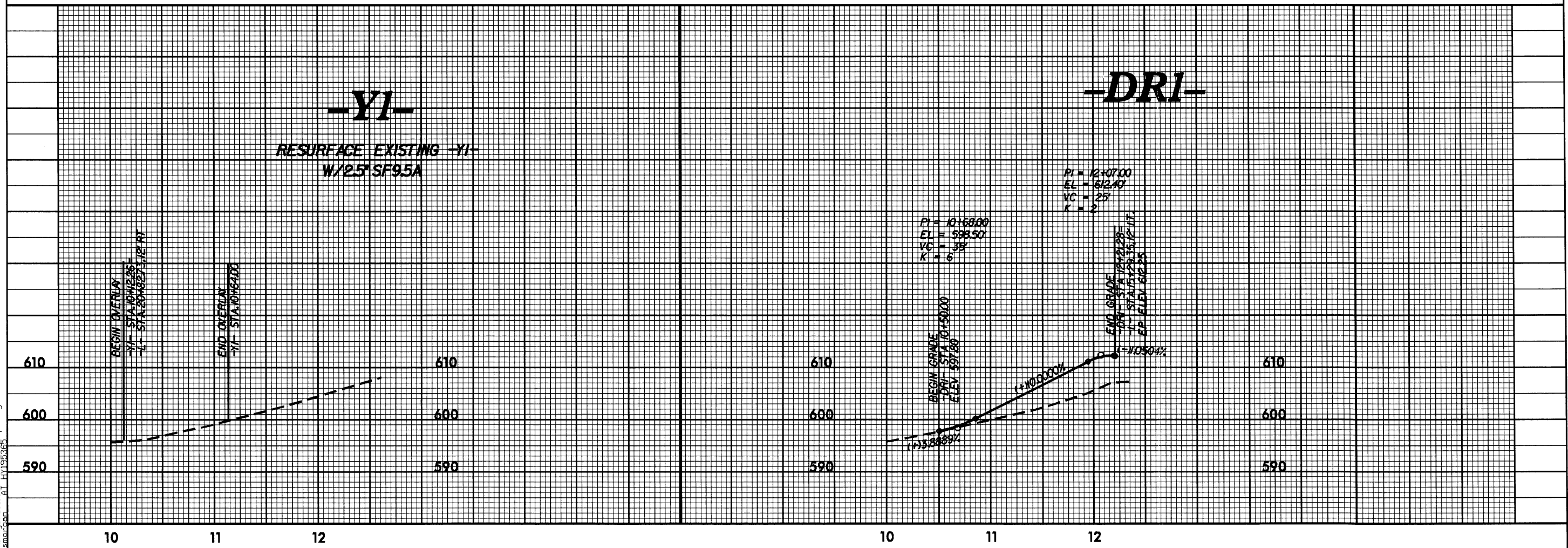
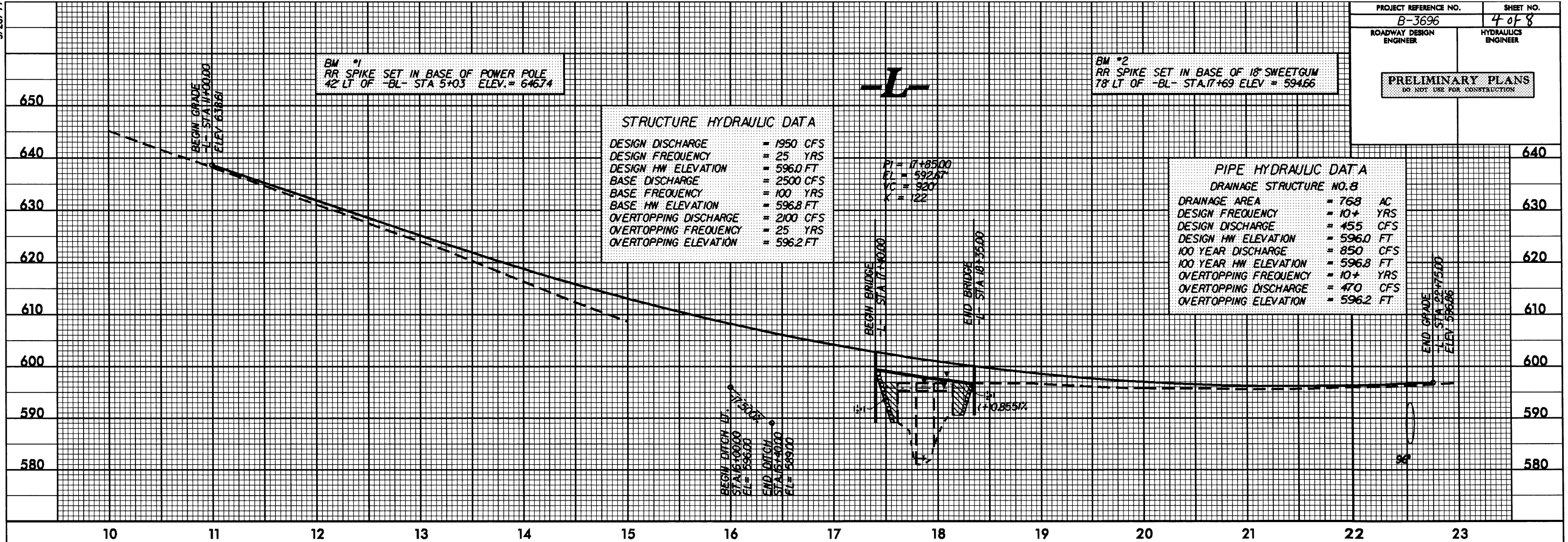
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B-3696

SHEET NO.
4 of 8

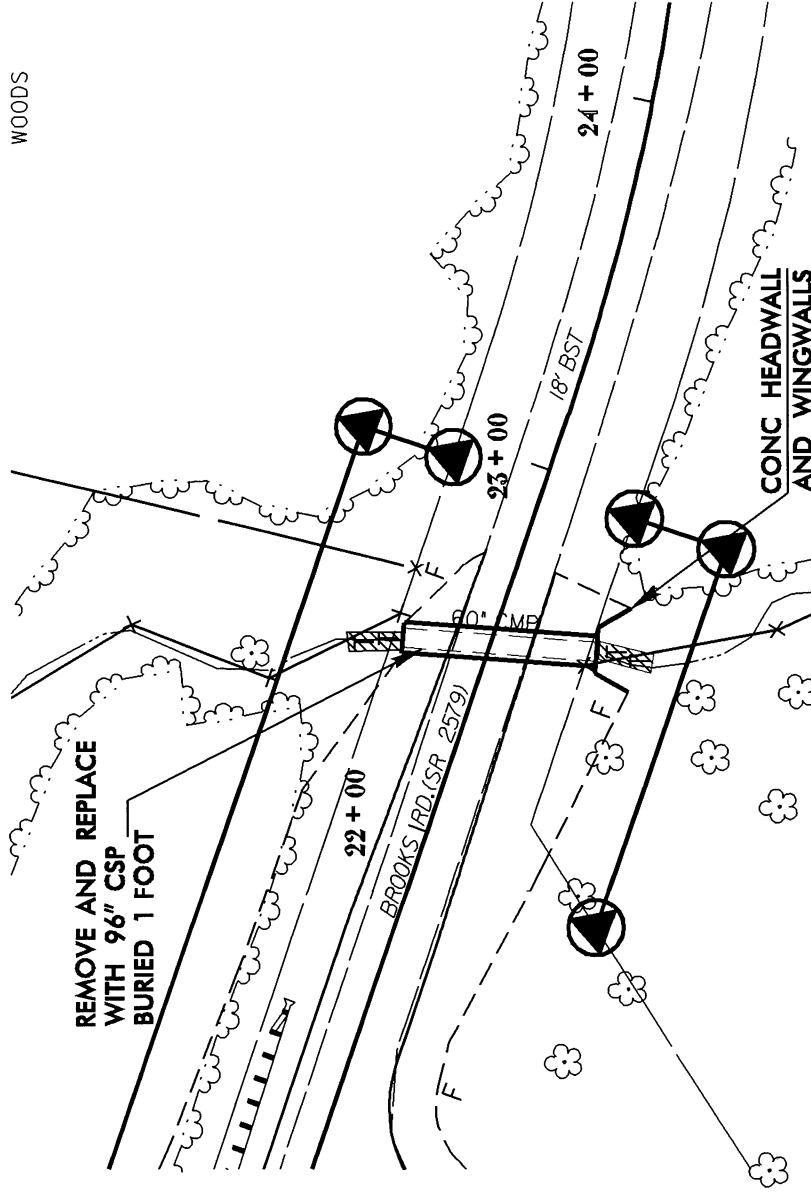
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
(DO NOT USE FOR CONSTRUCTION)



WOODS

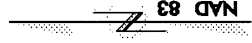


PLAN VIEW SITE 2

Denotes Temporary Fill
in Surface Water

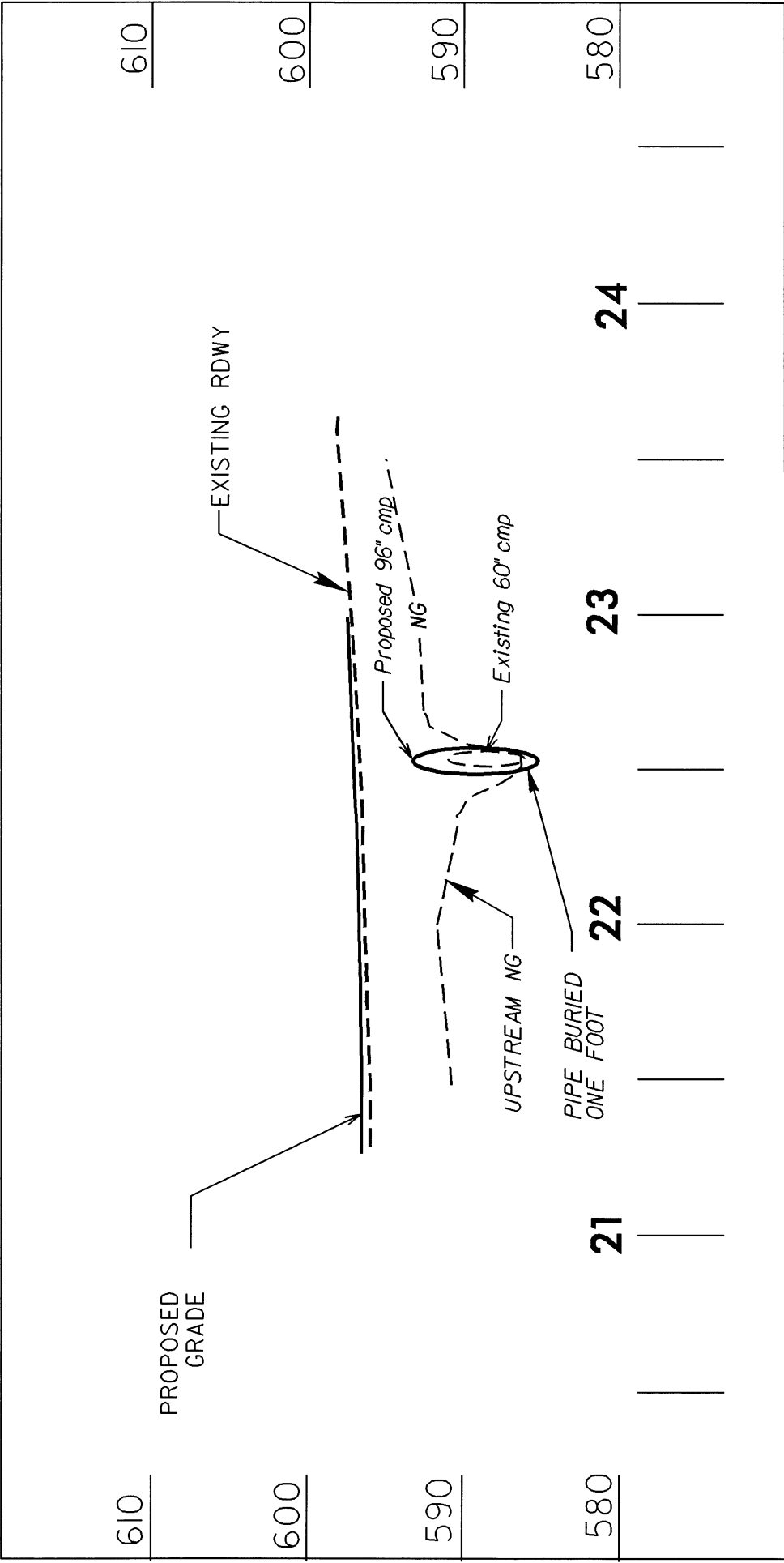


SCALE



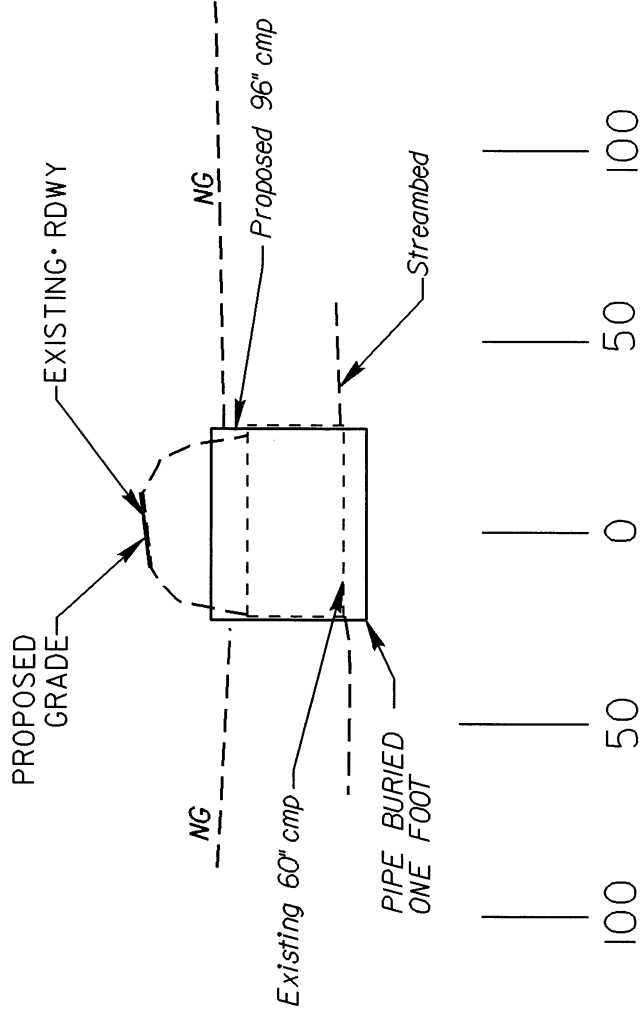
NCDOT

DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 8.2511001 (B-3696)
BRIDGE OVER JONES CREEK
ON SR 2579 BETWEEN US 158
AND SR 2588



PROFILE
SITE 2

NCDOT
DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 8.2511001 (B-3696)
BRIDGE OVER JONES CREEK
ON SR2579 BETWEEN US 158
AND SR 2588



CROSS SECTION

SITE 2

NCDOT

**DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY
PROJECT: 8.2511001 (B-3696)
BRIDGE OVER JONES CREEK
ON SR2579 BETWEEN US 158
AND SR 2588**

WETLAND/SURFACE WATER IMPACT SUMMARY

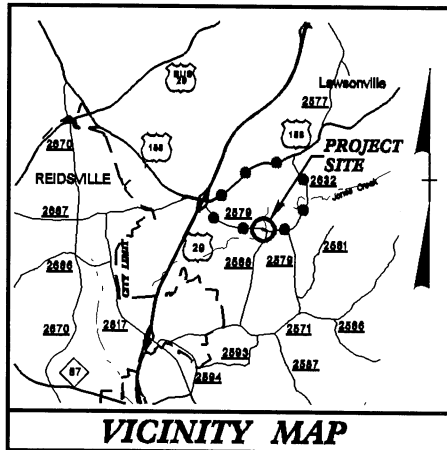
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	17+87.5 -L-	90' Single Span Bridge									
2	22+50 -L-	96" CSP						0.0079	30		
TOTALS:								0.0079	30		

Note: The pipe culvert replacement at site 2 will be the same length as the existing pipe culvert.
The impacts shown are for the anticipated temporary diversion and erosion control measures.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ALAMANCE COUNTY
PROJECT: 8.2511001 (B-3696)
REPLACEMENT OF BRIDGE NO. 84 ON
SR 2579 OVER JONES CREEK
SHEET OF 80f8 5/18/04

05/08/99

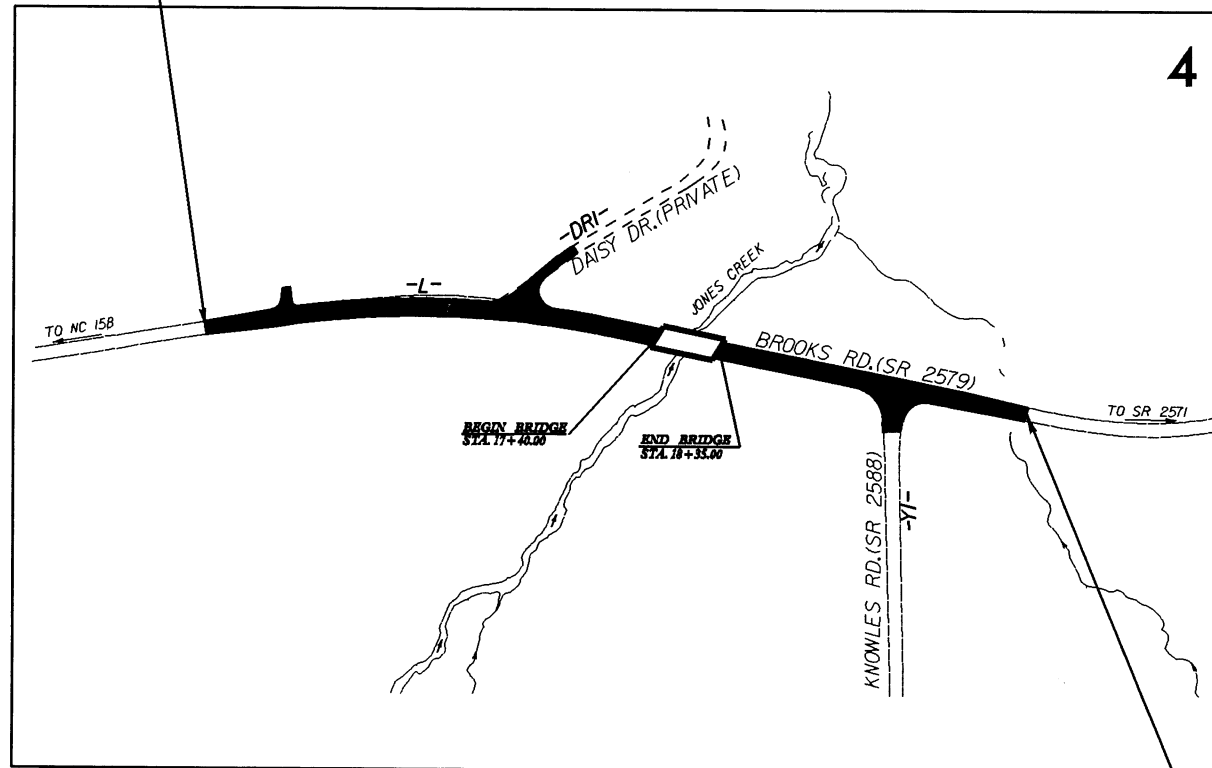
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

—●— OFFSITE DETOUR

STA. 11+00.00 -L- BEGIN TIP PROJECT B-3696



4

STA. 22+75.00 -L- END TIP PROJECT B-3696



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 84 OVER JONES CREEK ON SR 2579
(BROOKS RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING,
AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3696	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33236.1.1	BRZ-2579(1)	P.E.	
33236.2.1	BRZ-2579(1)	R/W & UTIL.	

NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
NOTE: CLEARING ON THIS PROJECT SHOULD BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD III

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2004 = 1354
ADT 2024 = 1969
DHV = 10 %
D = 60 %
T = 3 % *
V = 60 MPH
* TTST 1% + DUAL 2%
FUNC. = RURAL COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3696 = 0.205 MI
LENGTH OF STRUCTURE TIP PROJECT B-3696 = 0.018 MI
TOTAL LENGTH OF TIP PROJECT B-3696 = 0.223 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 31, 2003

LETTING DATE:
SEPTEMBER 21, 2004

BRENDA MOORE, P.E.
PROJECT ENGINEER

ROGER KLUCKMAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

10-MAY-2004 16:23
R:\Proj\B3696-Fdy_tsh.dgn
JMD:ew

TIP PROJECT: B-3696

CONTRACT: C201004

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	----
Curb	----
Prop. Slope Stakes Cut	-----C-----
Prop. Slope Stakes Fill	-----F-----
Prop. Woven Wire Fence	○-----○
Prop. Chain Link Fence	□-----□
Prop. Barbed Wire Fence	◇-----◇
Prop. Wheelchair Ramp	(WCR)
Curb Cut for Future Wheelchair Ramp	(CCFR)
Exist. Guardrail	---+---+---+---
Prop. Guardrail	---+---+---+---
Equality Symbol	⊕
Pavement Removal	XXXXXX

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	△-----
Prop. Right of Way Line with Proposed	△-----
R/W Marker (Iron Pin & Cap)	▲
Prop. Right of Way Line with Proposed	▲-----
(Concrete or Granite) R/W Marker	⊙
Exist. Control of Access Line	⊙-----
Prop. Control of Access Line	⊙-----
Exist. Easement Line	-----E-----
Prop. Temp. Construction Easement Line	-----E-----
Prop. Temp. Drainage Easement Line	-----TDE-----
Prop. Perm. Drainage Easement Line	-----PDE-----

HYDROLOGY

Stream or Body of Water	~~~~~
River Basin Buffer	~~~~~
Flow Arrow	→
Disappearing Stream	→
Spring	○
Swamp Marsh	~
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW

MINOR

Head & End Wall	CONC HW
Pipe Culvert	=====
Footbridge	>-----<
Drainage Boxes	□ CB
Paved Ditch Gutter	-----

UTILITIES

Exist. Pole	•
Exist. Power Pole	•
Prop. Power Pole	•
Exist. Telephone Pole	•
Prop. Telephone Pole	•
Exist. Joint Use Pole	•
Prop. Joint Use Pole	•
Telephone Pedestal	⊕
U/G Telephone Cable Hand Hold	⊕
Cable TV Pedestal	⊕
U/G TV Cable Hand Hold	⊕
U/G Power Cable Hand Hold	⊕
Hydrant	⊕
Satellite Dish	⊕
Exist. Water Valve	⊕
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Cellular Telephone Tower	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	⊕
Power Line Tower	⊕
Pole with Base	⊕
Gas Valve	⊕
Gas Meter	⊕
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	⊕
Water Tank With Legs	⊕
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
Television or Radio Tower	⊕
Utility Power Line Connects to Traffic	⊕
Signal Lines Cut Into the Pavement	⊕

Recorded Water Line	W-----W
Designated Water Line (S.U.E.*)	W-----W
Sanitary Sewer	SS-----SS
Recorded Sanitary Sewer Force Main	FSS-----FSS
Designated Sanitary Sewer Force Main(S.U.E.*)	FSS-----FSS
Recorded Gas Line	G-----G
Designated Gas Line (S.U.E.*)	G-----G
Storm Sewer	S-----S
Recorded Power Line	P-----P
Designated Power Line (S.U.E.*)	P-----P
Recorded Telephone Cable	T-----T
Designated Telephone Cable (S.U.E.*)	T-----T
Recorded U/G Telephone Conduit	TC-----TC
Designated U/G Telephone Conduit (S.U.E.*)	TC-----TC
Unknown Utility (S.U.E.*)	UTL-----UTL
Recorded Television Cable	TV-----TV
Designated Television Cable (S.U.E.*)	TV-----TV
Recorded Fiber Optics Cable	FO-----FO
Designated Fiber Optics Cable (S.U.E.*)	FO-----FO
Exist. Water Meter	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to U/G Record	ATTUR
End of Information	E.O.I.

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	⊕
Exist. Iron Pin	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	⊕
Parcel Number	⊕
Fence Line	-----
Existing Wetland Boundaries	WW & ISBW
High Quality Wetland Boundary	HLB
Medium Quality Wetland Boundaries	MO WLB
Low Quality Wetland Boundaries	LO WLB
Proposed Wetland Boundaries	WLB
Existing Endangered Animal Boundaries	EAB
Existing Endangered Plant Boundaries	EPB

BUILDINGS & OTHER CULTURE

Buildings	⊕
Foundations	⊕
Area Outline	⊕
Gate	⊕
Gas Pump Vent or U/G Tank Cap	⊕
Church	⊕
School	⊕
Park	⊕
Cemetery	⊕
Dam	⊕
Sign	⊕
Well	⊕
Small Mine	⊕
Swimming Pool	⊕

TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	R/W
Guard Post	⊕ GP
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	⊕

VEGETATION

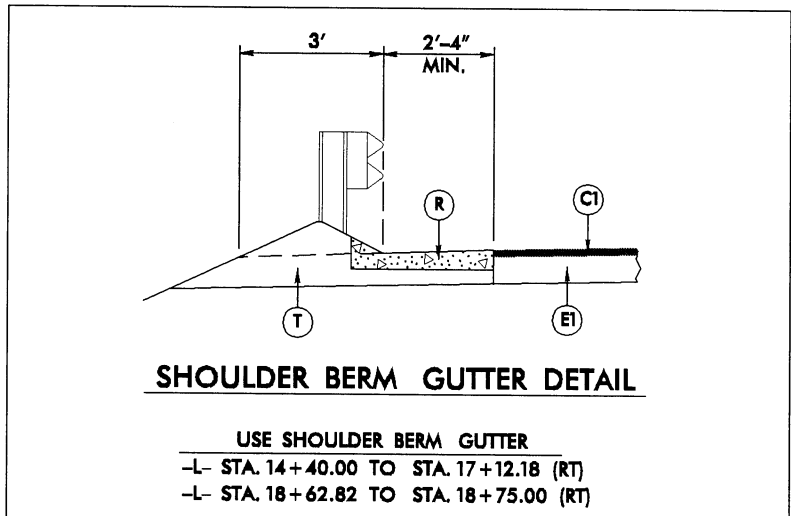
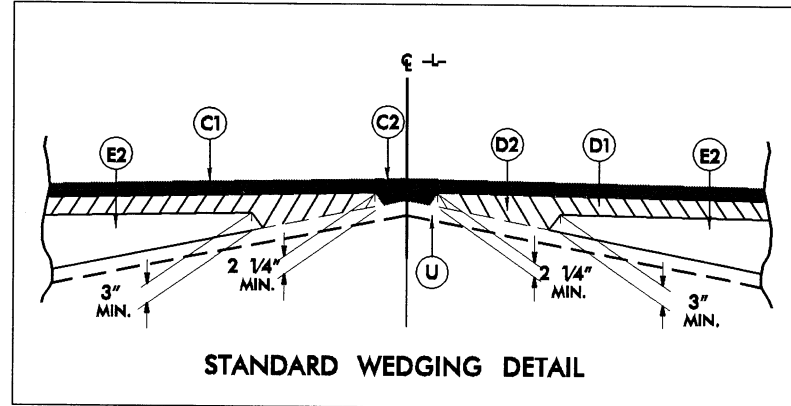
Single Tree	⊕
Single Shrub	⊕
Hedge	-----
Woods Line	-----
Orchard	⊕
Vineyard	VINEYARD

RAILROADS

Standard Gauge	-----
RR Signal Milepost	⊕
Switch	⊕

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE STANDARD WEDGING DETAIL THIS SHEET).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

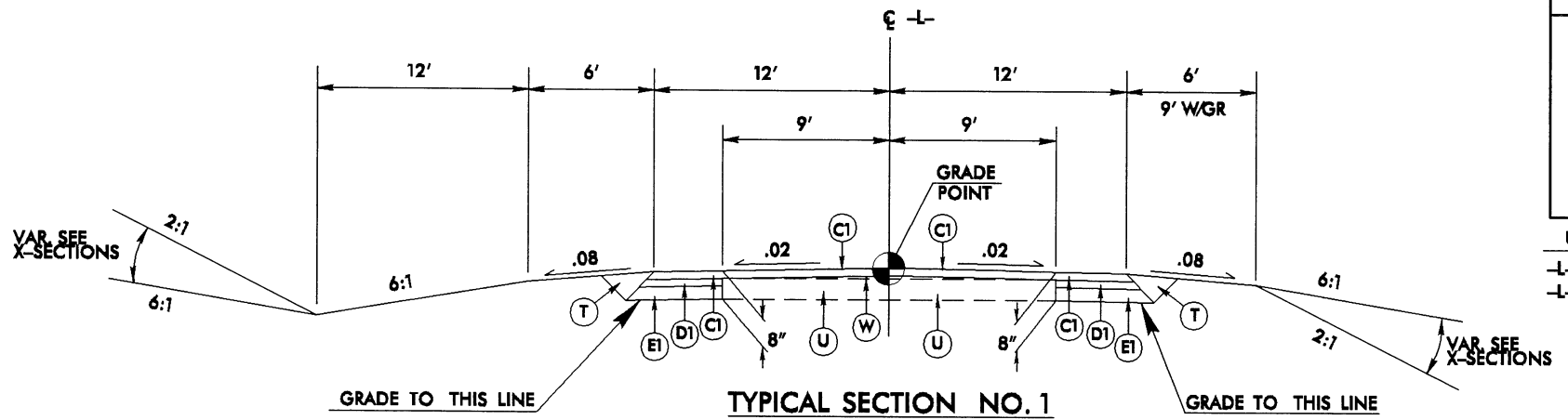


PROJECT REFERENCE NO.	SHEET NO.
B-3696	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

USE TYPICAL SECTION No. 1

-L- STA. 11+00.00 TO 12+00.00

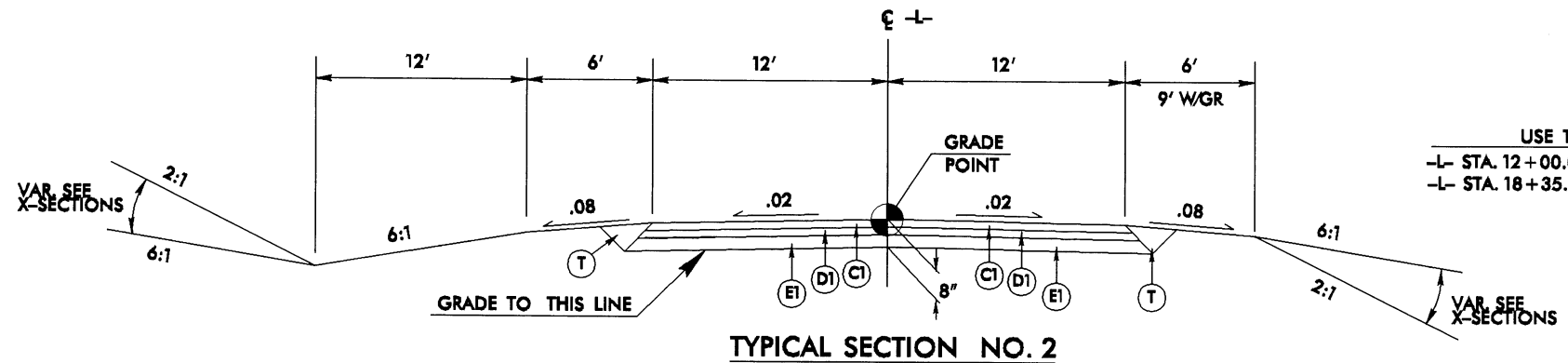
-L- STA. 20+50.00 TO 22+75.00



USE TYPICAL SECTION No. 2

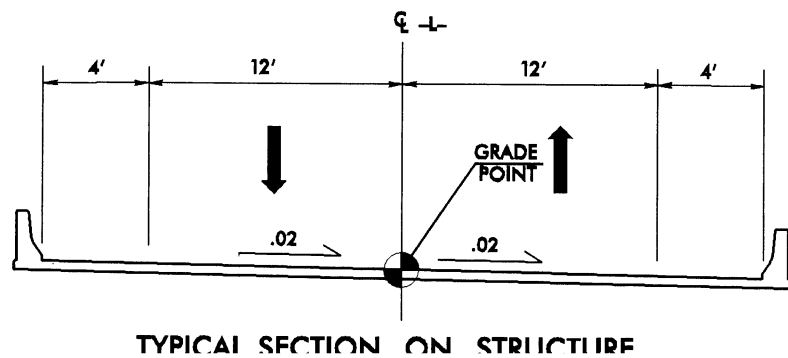
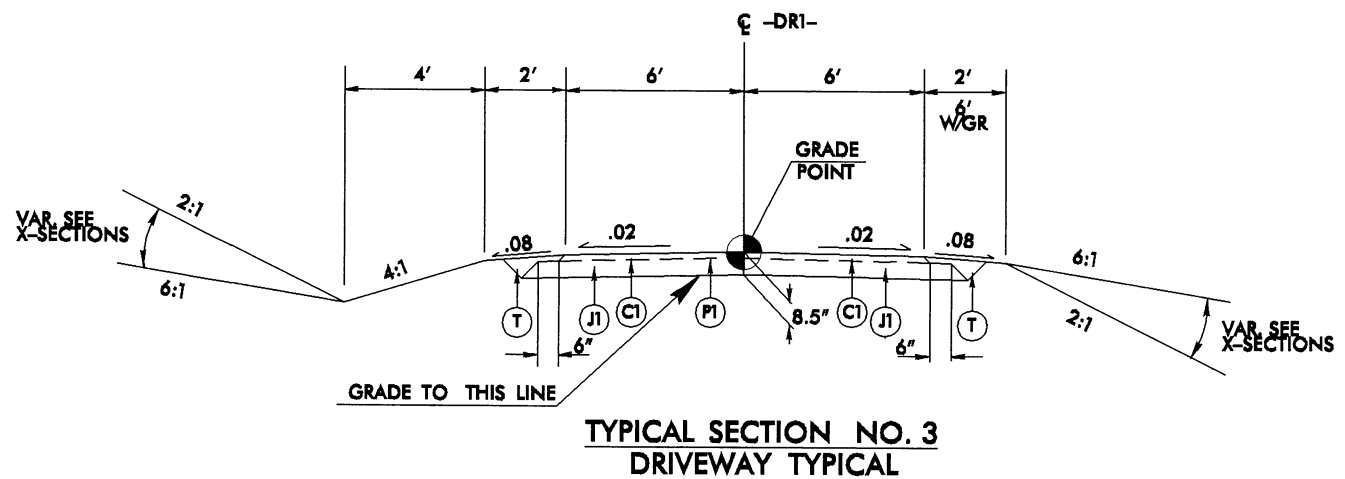
-L- STA. 12+00.00 TO 17+40.00 (BEGIN BRIDGE)

-L- STA. 18+35.00 (END BRIDGE) TO 20+50.00



USE TYPICAL SECTION No. 3

-DR1- STA. 10+50.00 TO STA. 12+21.28



NOTE: -Y1- STA. 10+12.26 TO 10+64.00 OVERLAY EXISTING W/2.5" SF9.5A

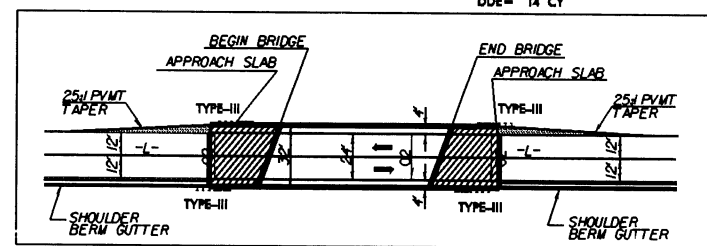
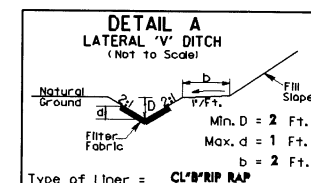
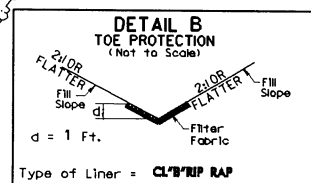
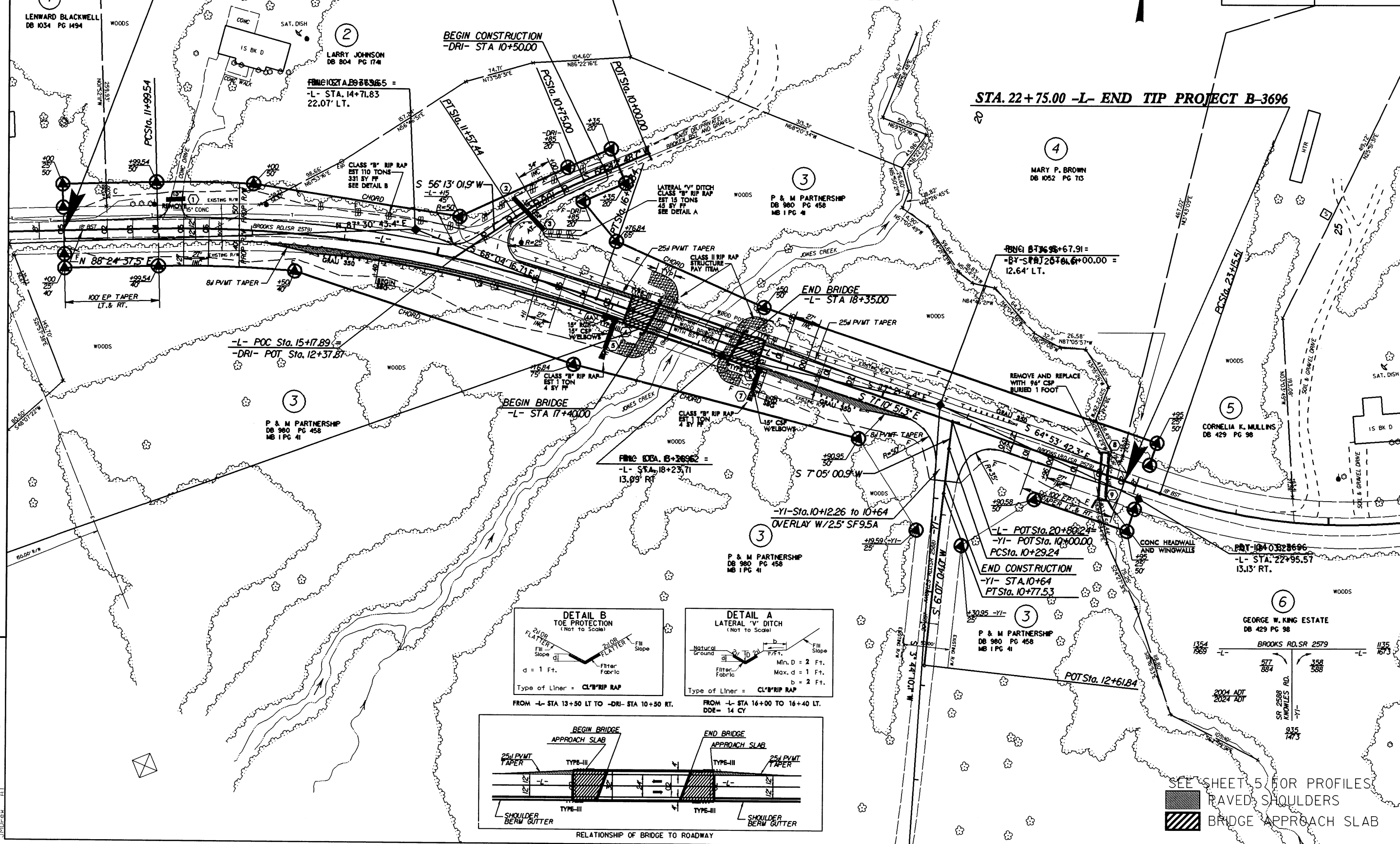
PROJECT REFERENCE NO.	SHEET NO.
B-3696	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83

STA. 11+00.00 -L- BEGIN TIP PROJECT B-3696

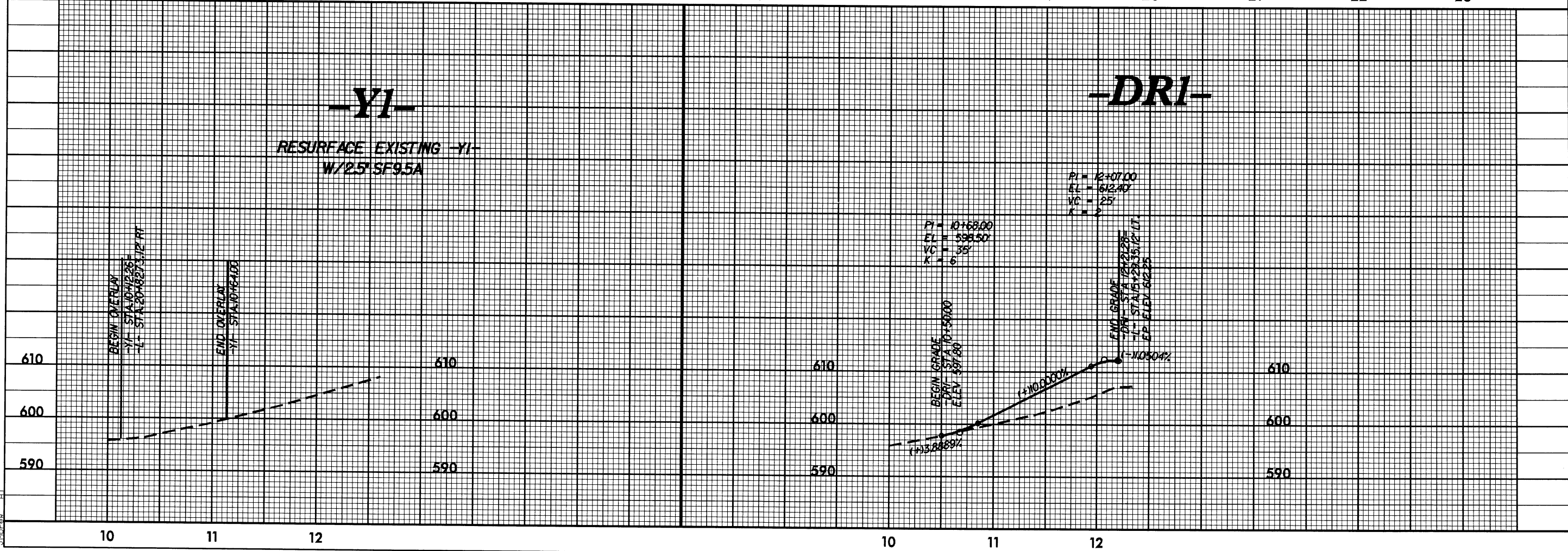
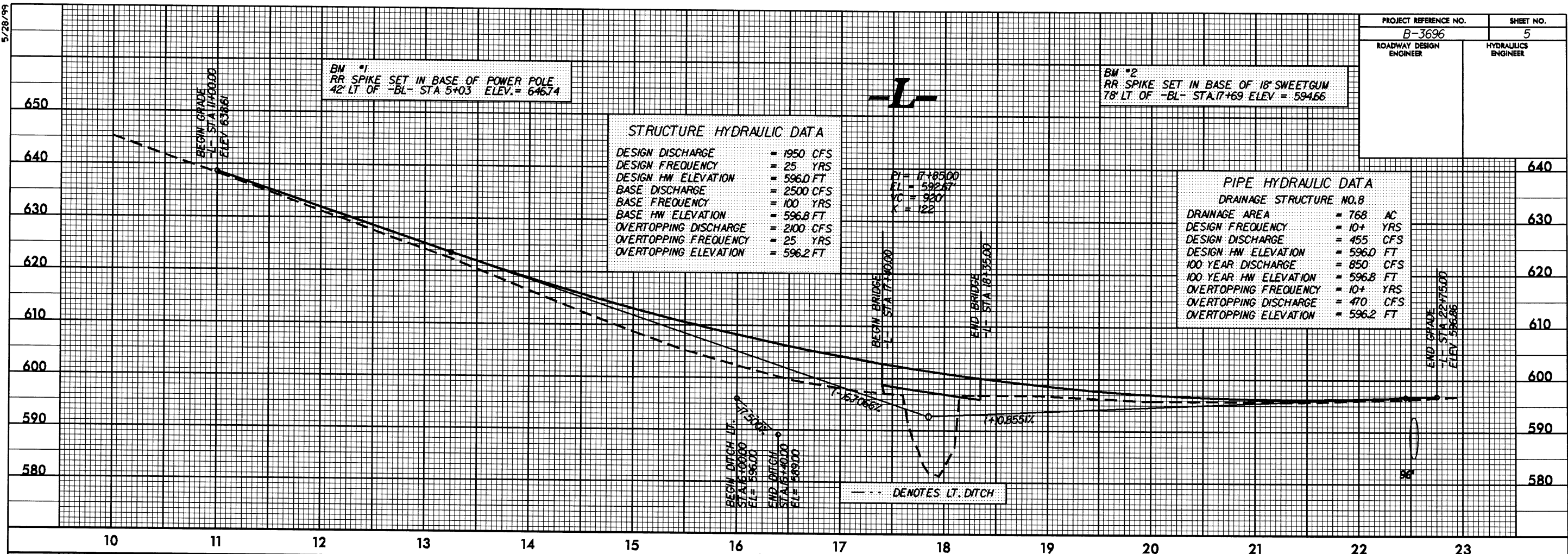
STA. 22+75.00 -L- END TIP PROJECT B-3696

-L-	-DRI-	-YI-
PI Sta 14+07.5 $\Delta = 20' 24' 31.2''$ (RT) $D = 4' 16' 32.9''$ $L = 477.31'$ $T = 241.21'$ $R = 1,340.00'$ SE = SEE PLANS	PI Sta 25+03.15 $\Delta = 33' 25' 17.7''$ (LT) $D = 9' 10' 02.4''$ $L = 364.57'$ $T = 187.64'$ $R = 625.00'$ SE = SEE PLANS	PI Sta 11+16.33 $\Delta = 10' 29' 46.9''$ (LT) $D = 12' 43' 56.6''$ $L = 82.44'$ $T = 41.33'$ $R = 450.00'$ SE = SEE PLANS
PI Sta 10+53.39 $\Delta = 0' 57' 56.9''$ (LT) $D = 2' 00' 00.0''$ $L = 48.29'$ $T = 24.15'$ $R = 2,864.79'$		

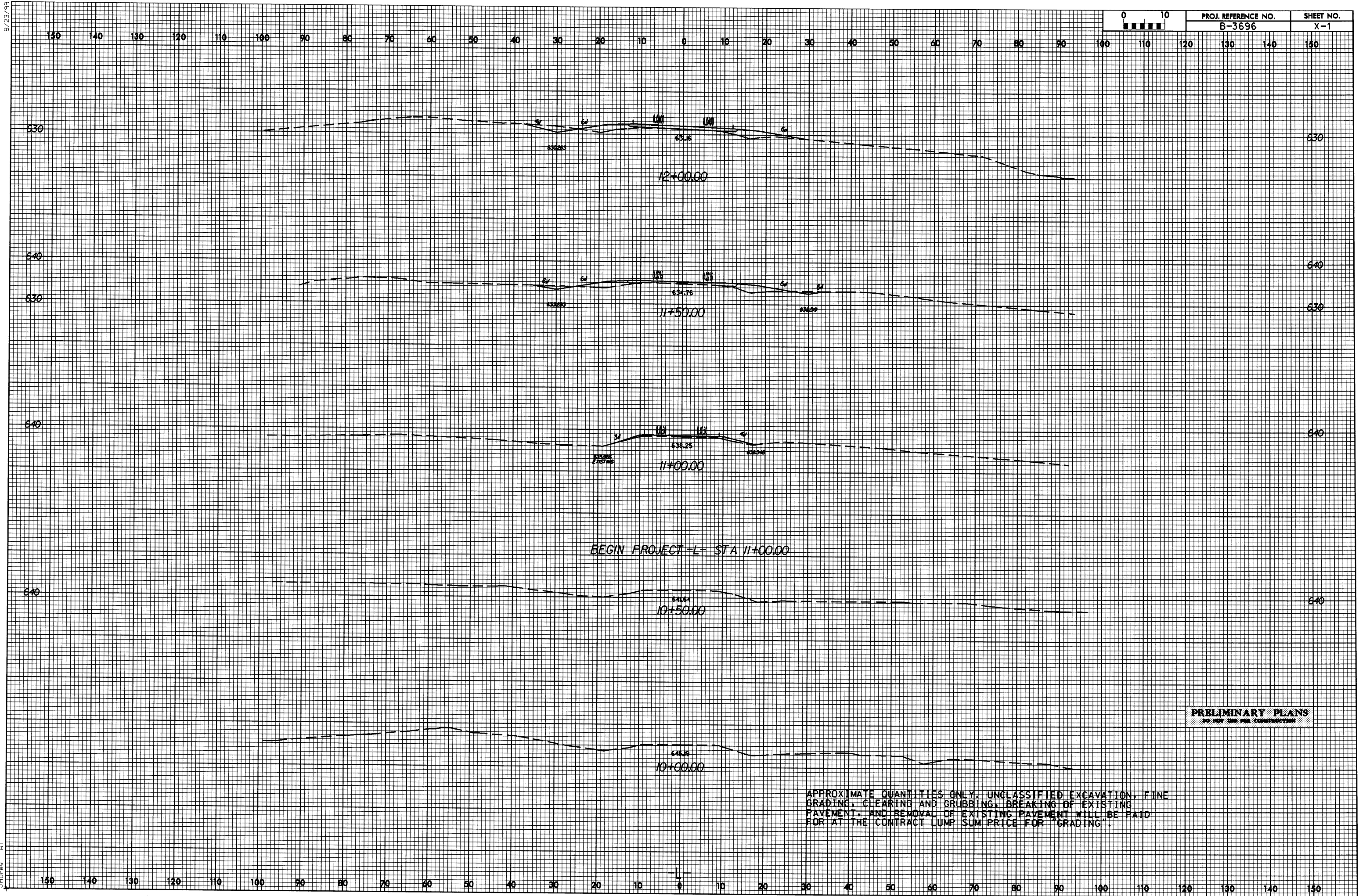


SEE SHEET 5 FOR PROFILES
RAVED SHOULDERS
BRIDGE APPROACH SLAB

8/17/99
10-MAY-2004 16:24
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JMD:SAV AT



8/23/99



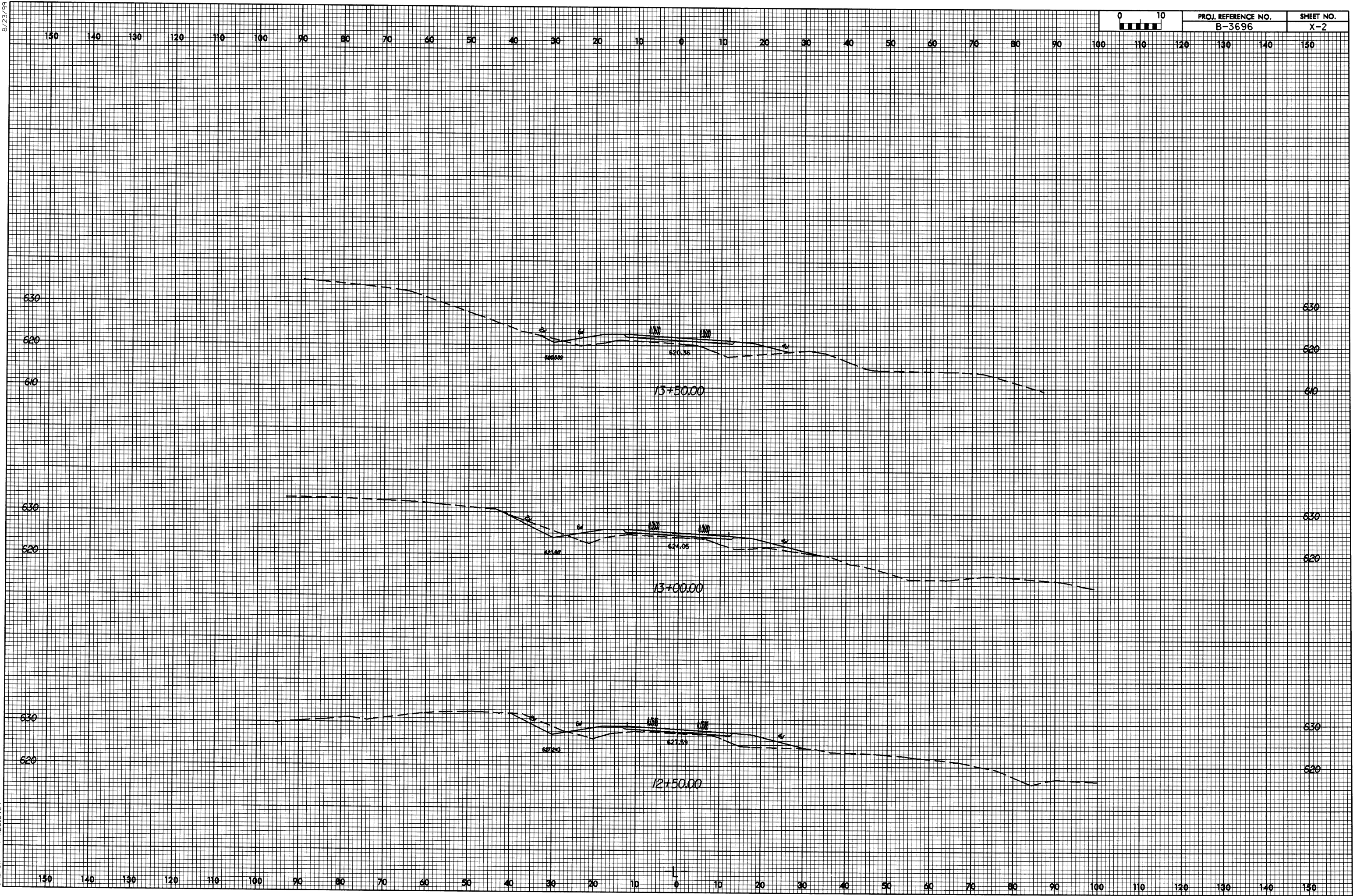
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

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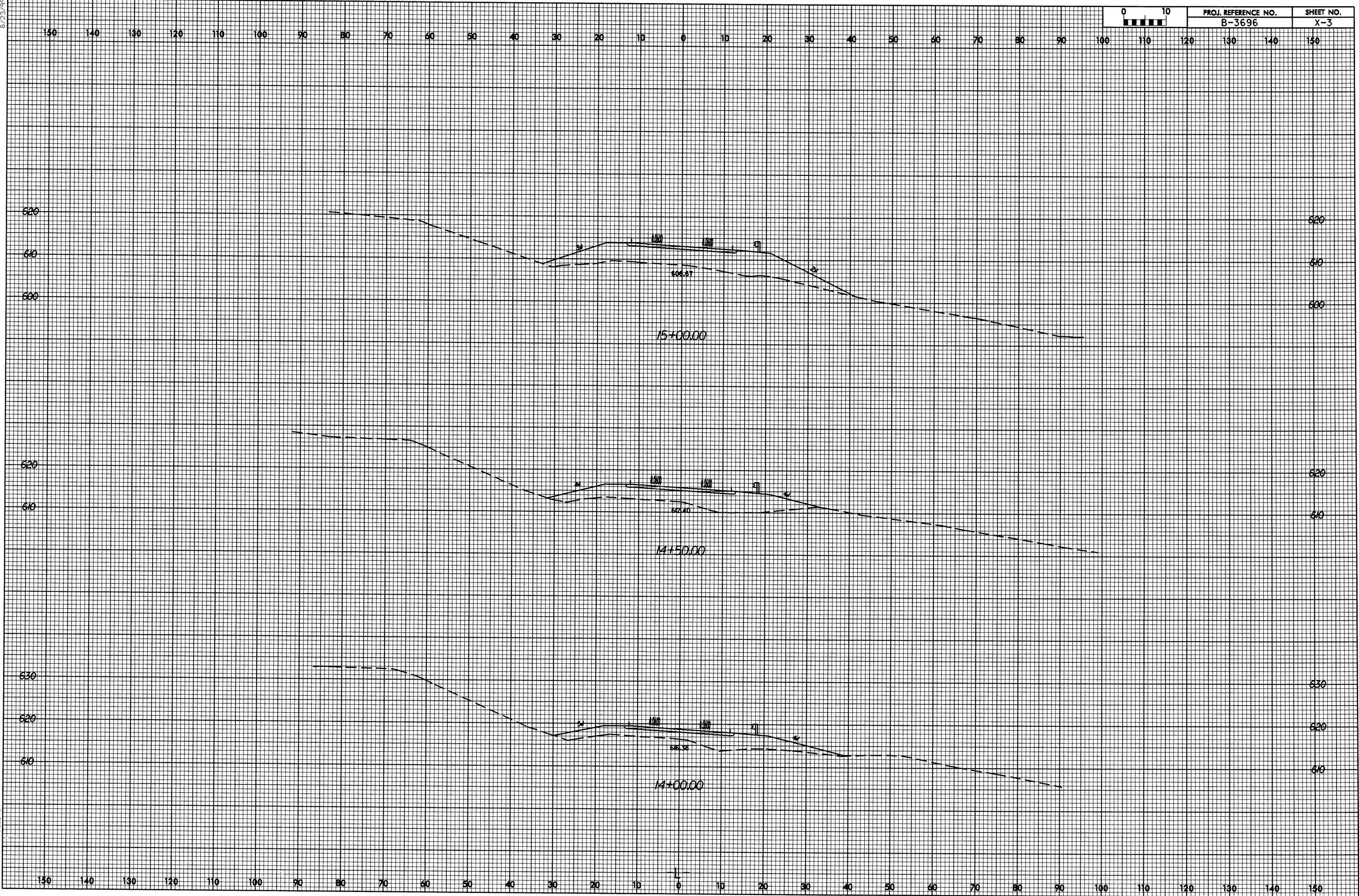
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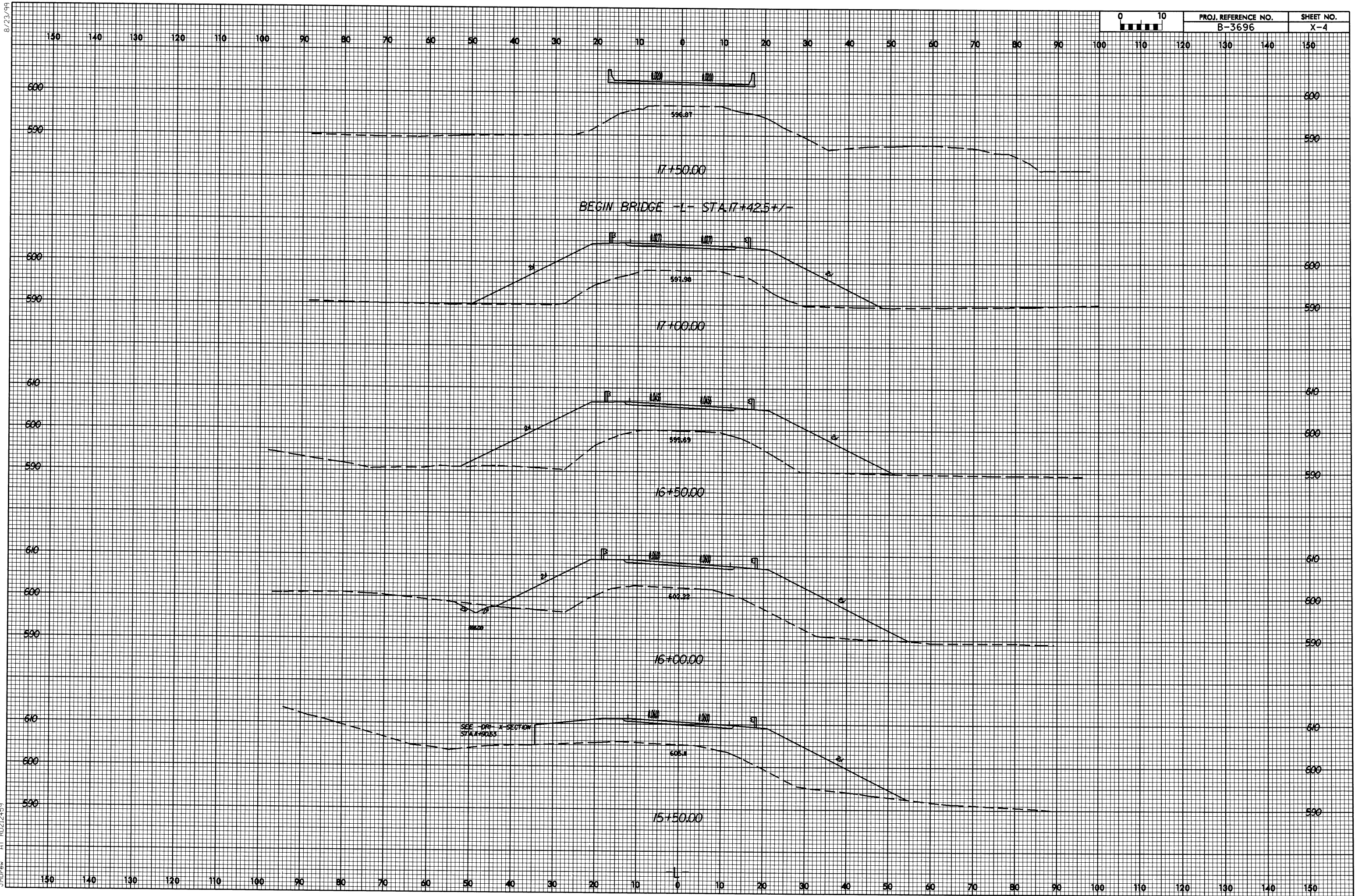
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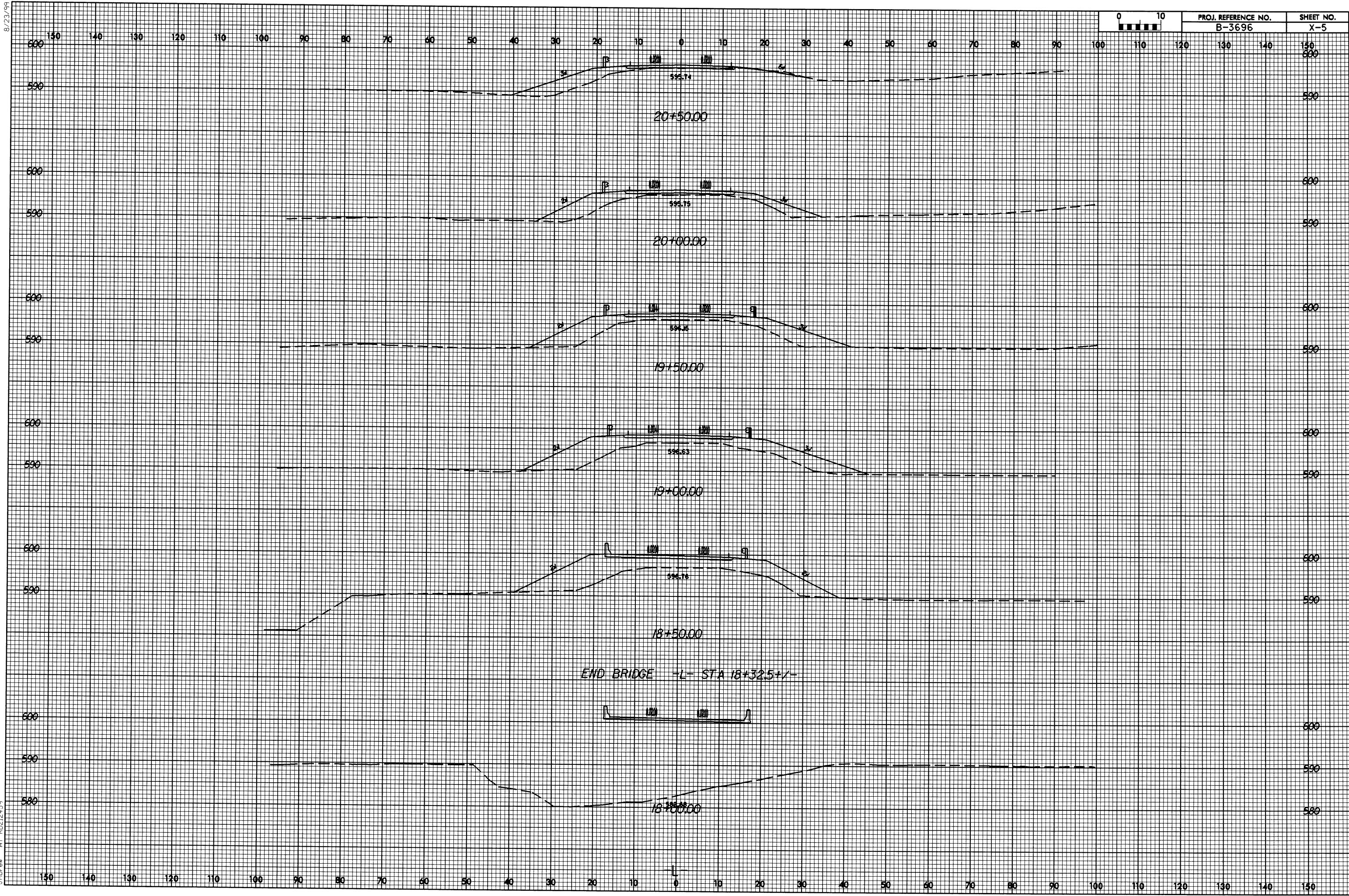


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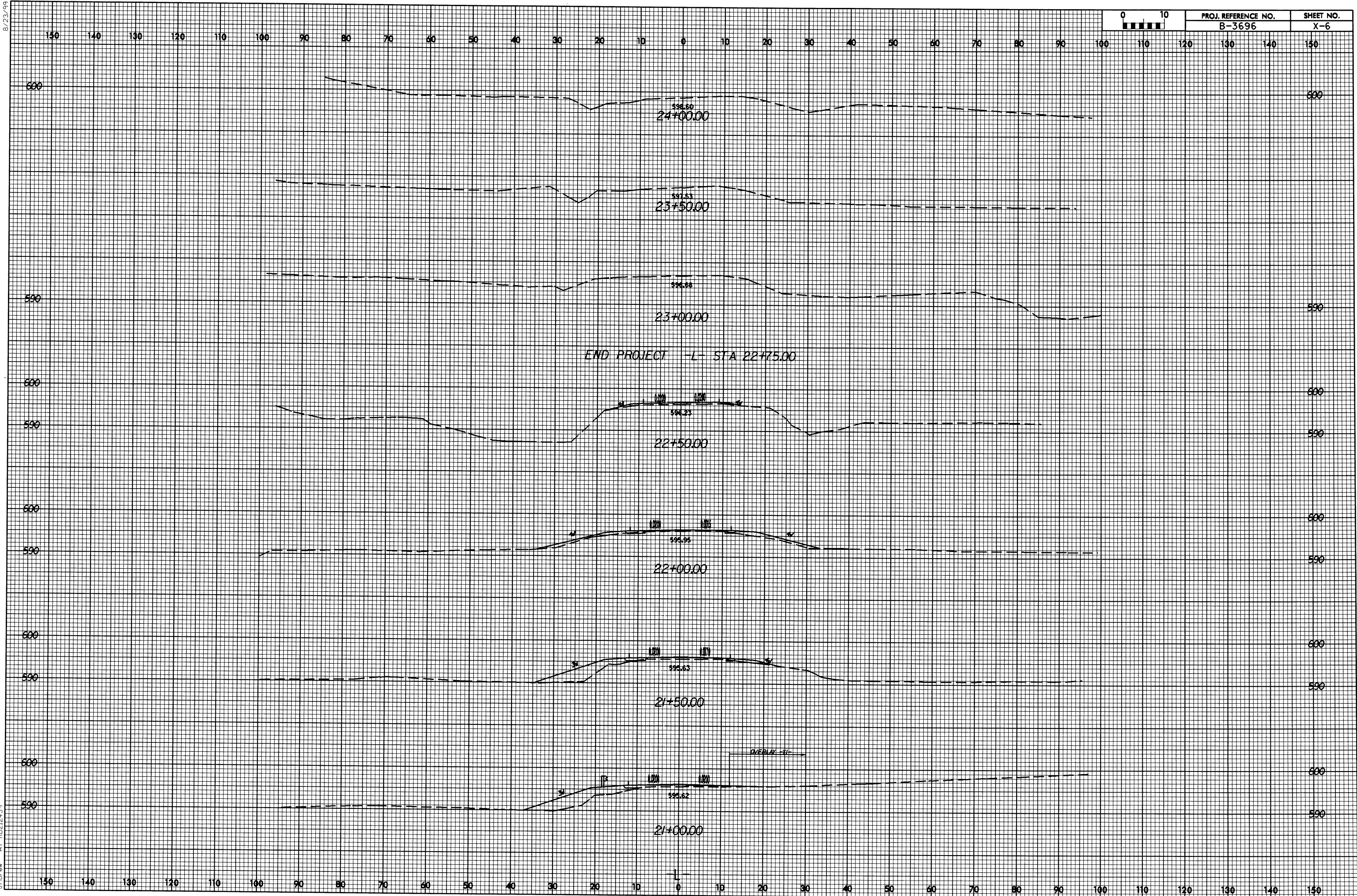
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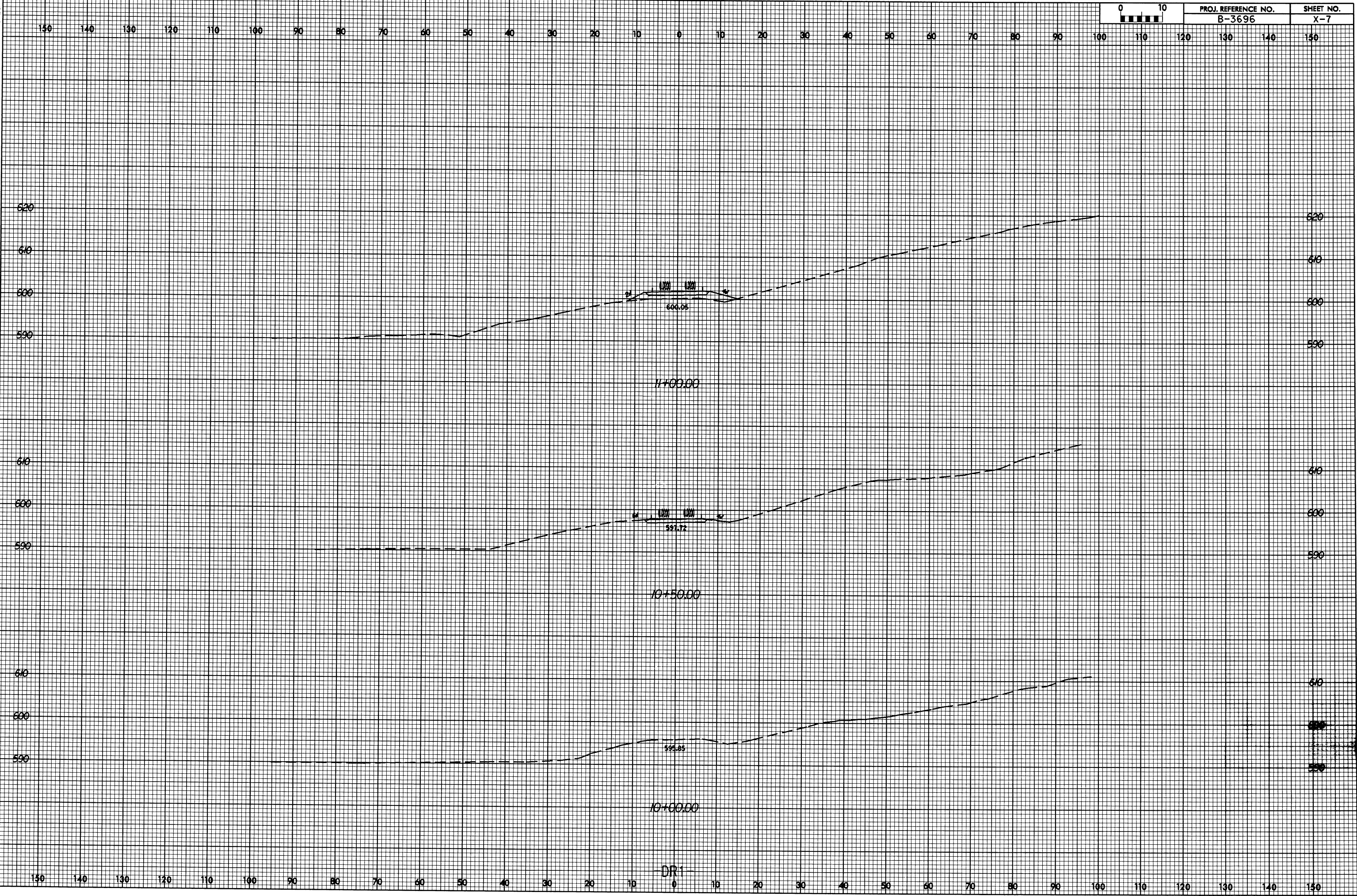
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8/23/99

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CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-3696</u>
State Project No.	<u>8.2511001</u>
Federal Project No.	<u>BRZ-2579 (1)</u>

A. Project Description:

This project proposes to replace Bridge No. 84 on SR 2579 over Jones Creek in Rockingham County. The bridge will be replaced with a 70-foot (21.3-m) long bridge in approximately the same location and roadway elevation as the existing bridge. The cross section of the new bridge will include two 12-foot (3.6-m) lanes with 4-foot (1.2-m) offsets. Approach work will consist of resurfacing and tying into the existing alignment for approximately 500 feet (152.4 m) on either side of the new bridge. Guardrail will be installed where warranted. Traffic will be detoured along surrounding roads during construction.

B. Purpose and Need:

Bridge No. 84 has a sufficiency rating of 19.0 out of a possible 100. The deck and substructure of this 50-year old bridge are in poor condition. Therefore, the bridge needs to be replaced. Rehabilitation is not practical due to the age of the structure and a timber substructure.

C. Proposed Improvements:

The following Type II improvements which apply to the project are circled:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes
 - c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
 - a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators
 - f. Upgrading medians including adding or upgrading median barriers
 - g. Improving intersections including relocation and/or realignment
 - h. Making minor roadway realignment
 - i. Channelizing traffic
 - j. Performing clear zone safety improvements including removing hazards and flattening slopes
 - k. Implementing traffic aid systems, signals, and motorist aid
 - l. Installing bridge safety hardware including bridge rail retrofit
- ③ Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.
 - a. Rehabilitating, reconstructing, or replacing bridge approach slabs
 - b. Rehabilitating or replacing bridge decks
 - c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
 - ④ Replacing a bridge (structure and/or fill)
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.
8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such

construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information:

Estimated Costs:

Total Construction	\$ 575,000
Right of Way	\$ 27,000
Total	\$ 602,000

Estimated Traffic:

Current	-	1300 vpd
Year 2025	-	2000 vpd
TTST	-	1%
Dual	-	2%

Proposed Typical Cross Section:

The approach roadway cross section will include two 12-foot (3.6-m) lanes and 6-foot (1.8-m) grassed shoulders. The shoulder width will be increased to 9 feet (2.7-m) where guardrail is installed.

Design Speed:

60 mph (100 km/h) (Design exception for vertical alignment may be required.)

Functional Classification:

Rural Minor Collector

Division Office Comments:

The Division Seven Construction Office concurs in the recommendation to replace Bridge No. 84 in approximately the same location as the existing bridge while detouring traffic along surrounding roads.

Bridge Demolition:

Bridge No. 84 contains three spans totaling 53 feet (16.2 m) in length. The entire bridge is composed of timber. Therefore, Bridge No. 84 will be removed without dropping any of its components into Waters of the United States.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<u>X</u>
(2) Does the project involve habitat where federally listed endangered or threatened species may occur?	<input checked="" type="checkbox"/>	<u> </u>
(3) Will the project affect anadromous fish?	<input type="checkbox"/>	<u>X</u>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-third (1/3) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<u>X</u>	<input type="checkbox"/>
(5) Will the project require the use of U. S. Forest Service lands?	<input type="checkbox"/>	<u>X</u>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<u>X</u>
(7) Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<u>X</u>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<u>X</u>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<u>X</u>
<u>PERMITS AND COORDINATION</u>	<u>YES</u>	<u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<u>X</u>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<u>X</u>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<u>X</u>

- | | | | |
|------|--|--------------------------|----------|
| (13) | Will the project result in the modification of any existing regulatory floodway? | <input type="checkbox"/> | <u>X</u> |
| (14) | Will the project require any stream relocations or channel changes? | <input type="checkbox"/> | <u>X</u> |

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

- | | | <u>YES</u> | <u>NO</u> |
|------|---|--------------------------|--------------------------|
| (15) | Will the project induce substantial impacts to planned growth or land use for the area? | <input type="checkbox"/> | <u>X</u> |
| (16) | Will the project require the relocation of any family or business? | <input type="checkbox"/> | <u>X</u> |
| (17) | Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? | <input type="checkbox"/> | <u>X</u> |
| (18) | If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? | <u>X</u> | <input type="checkbox"/> |
| (19) | Will the project involve any changes in access control? | <input type="checkbox"/> | <u>X</u> |
| (20) | Will the project substantially alter the usefulness and/or land use of adjacent property? | <input type="checkbox"/> | <u>X</u> |
| (21) | Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? | <input type="checkbox"/> | <u>X</u> |
| (22) | Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)? | <u>X</u> | <input type="checkbox"/> |
| (23) | Is the project anticipated to cause an increase in traffic volumes? | <input type="checkbox"/> | <u>X</u> |
| (24) | Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? | <u>X</u> | <input type="checkbox"/> |
| (25) | If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? | <u>X</u> | <input type="checkbox"/> |
| (26) | Is there substantial controversy on social, economic, or environmental grounds concerning the project? | <input type="checkbox"/> | <u>X</u> |
| (27) | Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project? | <u>X</u> | <input type="checkbox"/> |

- (28) Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places? ☐ X
- (29) Will the project affect any archaeological remains, which are important to history or pre-history? ☐ X
- (30) Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)? ☐ X
- (31) Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended? ☐ X
- (32) Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the Natural System of Wild and Scenic Rivers? ☐ X

F. Additional Documentation Required for Unfavorable Responses in Part E
(Discussion regarding all unfavorable responses in Part E should be provided below. Additional supporting documentation may be attached, as necessary.)

(2) The smooth coneflower grows in meadows, open woodlands, glades, cedar barrens, roadsides, power line rights-of-way, clearcuts, and dry limestone bluffs. Plants usually grow in soil derived from calcareous parent material. Optimal sites occur in areas with abundant sunlight and little competition from other herbaceous plants. Natural fires and large herbivores are important to the maintenance of the smooth coneflower habitat.

BIOLOGICAL CONCLUSION:

NO EFFECT

The open woodlands, roadsides, and clearcuts required by the smooth coneflower are present in the project study area. A plant-by-plant survey was conducted for the smooth coneflower on July 11, 2002 during the optimal survey window. The smooth coneflower was not observed during the site investigations in its preferred habitat within the project study area. Additionally, a review of the NHP database on March 6, 2002 revealed no records of existing populations of the smooth coneflower within 1.0 mi (1.6 km) of the project study area. Therefore, project construction will not affect the smooth coneflower.

G. CE Approval

TIP Project No.	<u>B-3696</u>
State Project No.	<u>8.2511001</u>
Federal-Aid Project No.	<u>BRZ-2579 (1)</u>

Project Description:

This project proposes to replace Bridge No. 84 on SR 2579 over Jones Creek in Rockingham County. The bridge will be replaced with a 70-foot (21.3-m) long bridge in approximately the same location and roadway elevation as the existing bridge. The cross section of the new bridge will include two 12-foot (3.6-m) lanes with 4-foot (1.2-m) offsets. Approach work will consist of resurfacing and tying into the existing alignment for approximately 500 feet (152.4 m) on either side of the new bridge. Guardrail will be installed where warranted. Traffic will be detoured along surrounding roads during construction.

Categorical Exclusion Action Classification:

<u> </u>	TYPE II (A)
<u> X </u>	TYPE II (B)

Approved:

<u>10/3/02</u>	<u>William T. Hocking</u>
Date	For Assistant Branch Manager
	Project Development & Environmental Analysis Branch

<u>10/8/02</u>	<u>William T. Hocking</u>
Date	Project Development Unit Head
	Bridge Replacement Program
	Project Development & Environmental Analysis Branch

<u>10/8/02</u>	<u>Karen B. Cape, PE</u>
Date	Project Development Engineer
	Project Development & Environmental Analysis Branch

For Type II (B) projects only:

<u>10/17/02</u>	<u>Felix D. Ila</u>
Date	For Division Administrator
	Federal Highway Administration

PROJECT COMMITMENTS

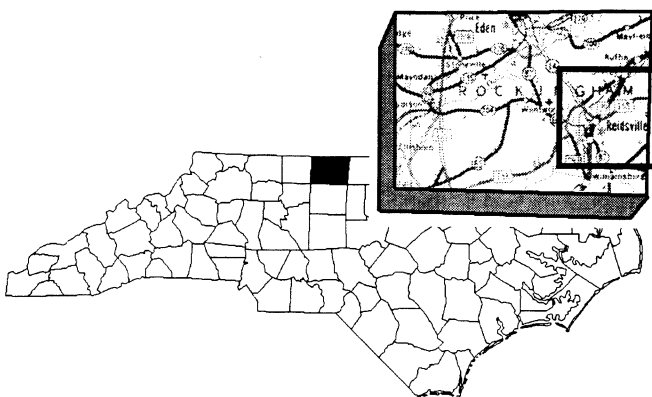
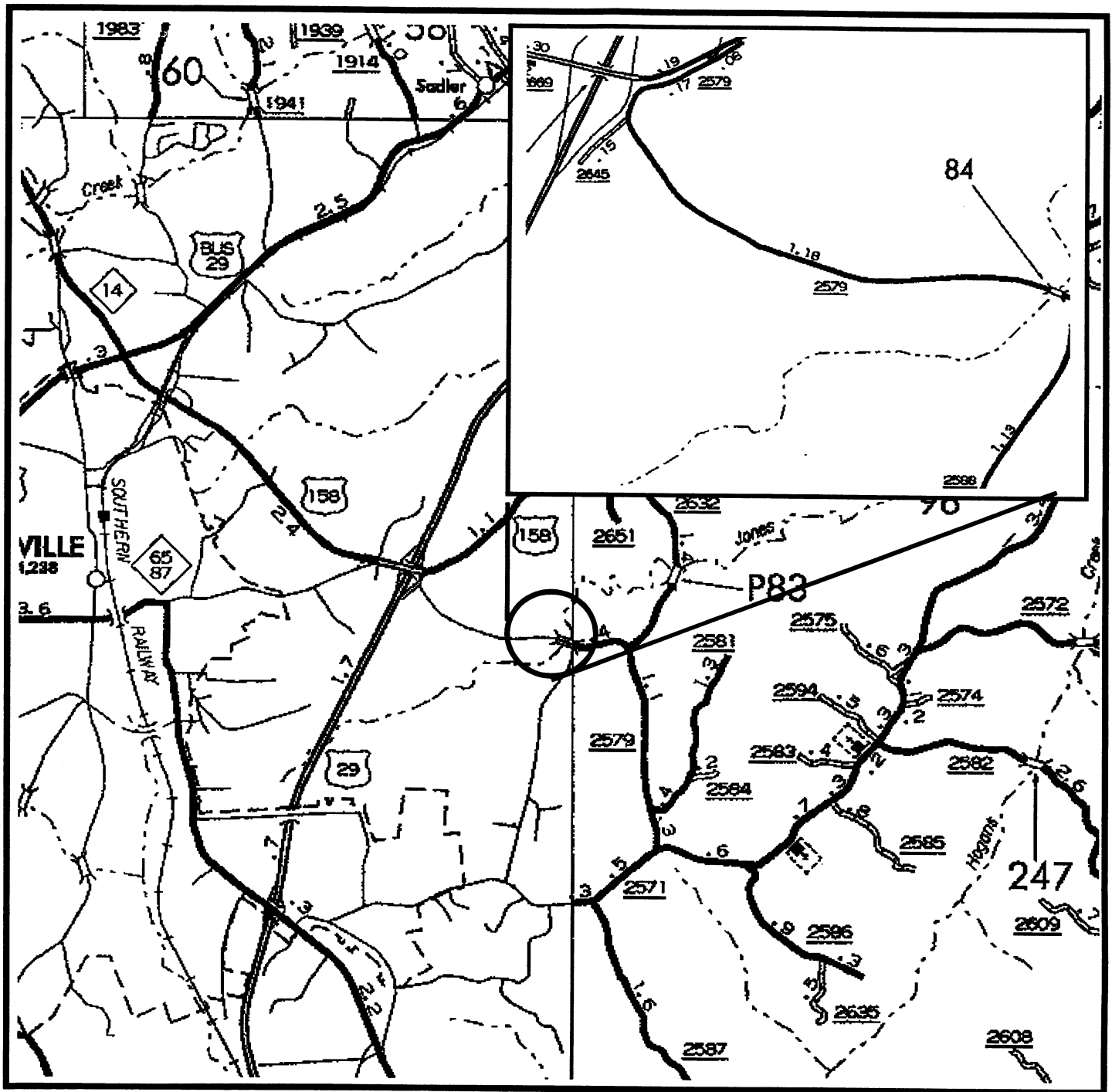
Replacement of Bridge No. 84
on SR 2579 over Jones Creek
Rockingham County
Federal-Aid No. BRZ-2579(1)
State Project No. 8.2511001
T.I.P. No. B-3696


Roadway Design Unit, Roadside Environmental Unit, Division 7 Construction

NCDOT will adhere to the Best Management Practices (BMPs) for "Bridge Demolition and Removal" during the removal of Bridge No. 84.

Project Development and Environmental Analysis Branch

NCDOT performed a threatened and endangered species survey for the Smooth coneflower on July 11, 2002. Habitat for the Smooth coneflower is present in the project study area although no species were present. Therefore, the survey must be updated by July 11, 2004 before the project is let August 17, 2004.



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p>ROCKINGHAM COUNTY REPLACE BRIDGE NO. 84 ON SR 2572 OVER JONES CREEK B-3696</p>	
<p>Figure 1</p>	



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

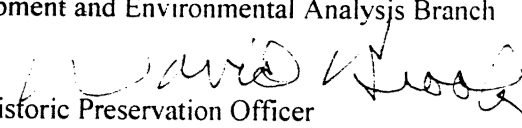
James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

September 12, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook 
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 84 on SR 2579 over Jones Creek.
TIP No. B-3696, Rockingham County, ER 00-8456

On March 7, 2000, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources, which may be eligible for inclusion in the National Register of Historic Places, will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment, which indicates how NCDOT addressed our comments.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
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RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

NATURAL RESOURCES TECHNICAL REPORT

for the

**REPLACEMENT OF BRIDGE NO. 84 ON SR 2579
OVER JONES CREEK
ROCKINGHAM COUNTY, NORTH CAROLINA**

TIP No. B-3696
State Project No. 8.2511001

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Project Development and Environmental Analysis Branch
Natural Resources, Permits and Mitigation Unit
One South Wilmington Street, Post Office Box 25201
Raleigh, North Carolina 27611

Issued: March 2002

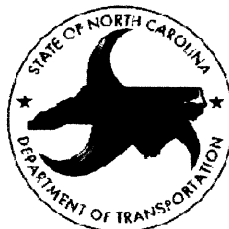


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1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in preparation of a Categorical Exclusion (CE) for the proposed project. The project is located in southeastern Rockingham County (Figure 1).

1.1 Project Description

The proposed project calls for the replacement of Bridge No. 84 on State Road 2579 over Jones Creek. The project length is approximately 1,000.00 ft (304.80 m).

1.2 Purpose

The purpose of this technical report is to inventory, catalog, and describe the various natural resources that may be impacted by the proposed action. Recommendations are made for measures that will minimize resource impacts. **These descriptions and estimates are relevant only in the context of the recommended project area. If the project area changes, additional field investigations may need to be conducted.**

1.3 Methodology

Research was conducted before field investigations. Information sources used in this pre-field investigation of the project area include: Williamsburg (1972) U.S. Geological Survey (USGS) quadrangle map, Williamsburg (1997) U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory Map, Natural Resources Conservation Service (NRCS) soil maps, and North Carolina Department of Transportation (NCDOT) aerial photographs of the project area (1:1,200). Water resource information was obtained from the Department of Environment, Health, and Natural Resources publications (DEHNR, 1996). Federal and State protected species information was gathered from the U.S. Fish and Wildlife Service (FWS) list of protected species and species of concern, and the N.C. Natural Heritage Program (NHP) database of rare species and unique habitats.

LandMark Design Group, Inc. (LandMark) environmental scientists Corri Faquin and Linda Diebolt conducted field surveys along the proposed alignment on March 11, 2002. Plant communities and their associated wildlife were identified and recorded. Wildlife identification involved using one or more of the following observation techniques: active search and capture, visual observations, and identification of characteristic signs of wildlife (sounds, scat, tracks, and burrows). Jurisdictional wetland delineations were performed utilizing the criteria prescribed in the Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory, 1987).

1.4 Qualifications of Investigators

- 1) Investigator: Corri Faquin, Environmental Scientist,
LandMark Design Group Inc., April 2001 to Present
Education: B.S. Natural Resources: Ecosystem Assessment,
Minor in Environmental Science, North Carolina State University, 2000
B.S. Biological Science, North Carolina State University, 2001
Experience: Associate Scientist, Biolex, Inc. Pittsboro, NC, January 2000 to March 2001
Laboratory Technician, Department of Forestry, North Carolina State
University, January 1999 to May 2000
- 2) Investigator: Linda Diebolt, Senior Environmental Scientist
LandMark Design Group, Inc., February 2002 to Present
Education: B.S. Biological Science, Marine Biology with Concentration in
Botany, University of North Carolina at Wilmington, 1986
Experience: Fifteen years experience as a Wetland Scientist and an
Environmental Scientist

1.5 Definitions

Definitions for area descriptions used in this report are as follows: **Project Area** denotes the area bounded by proposed construction limits; **Project Vicinity** describes an area within a 0.50 mi (0.81 km) radius of the project area; and **Project Region** is equivalent to an area represented by a 7.5 minute USGS quadrangle map with the project occupying the central position.

2.0 PHYSICAL RESOURCES

Soil and water resources that occur in the project area are discussed below. Soils and availability of water directly influence composition and distribution of flora and fauna in any biotic community.

The project area lies within the Piedmont Physiographic Province. The topography in this section of Rockingham County is characterized by nearly level areas, ridgetops, side slopes, and stream floodplains. Project elevation is approximately 600.00 ft (182.88 m) above mean sea level (msl).

2.1 Soils

Three soil series occur within the project area: Chewacla loam, Pacolet sandy clay loam, and Madison sandy clay loam. Soil phase description information was obtained from the Soil Survey of Rockingham County, North Carolina (1992). They are as follows:

- Chewacla loam (non-hydric) is a poorly drained soil found in nearly level or slightly concave areas parallel to major streams on floodplains. Permeability is moderate and the seasonal high water table occurs 0.50 to 1.50 ft (0.15 to 0.46 m) below the surface. Wetness and flooding are the major limitations for this soil type.

- Pacolet sandy clay loam (non-hydric) with 8.00 to 15.00 percent slopes is a well-drained soil found on long, narrow, convex side slopes. Permeability is moderate. Slope and the clayey subsoil are the main limitations for this soil type.
- Madison sandy clay loam (non-hydric) with 8.00 to 15.00 percent slopes is a well-drained soil found in lower areas on narrow, convex side slopes. Permeability is moderate. The high content of clay in the surface layer is the major limitation for this soil type.

2.2 Water Resources

This section contains information concerning those water resources within the project area. Water resource information encompasses physical aspects of the resource, its relationship to major water systems, Best Usage Standards, and water quality of the resources. Surface water resources and minimization methods are also discussed.

2.2.1 Surface Water Characteristics

Jones Creek and an unnamed tributary to Jones Creek are surface water resources within the project area. These water resources are located in sub-basin 03-02-03 of the Roanoke River Basin.

The average baseflow width of Jones Creek is approximately 15.00 ft (4.57 m). Average depth is approximately 1.50 ft (0.46 m). The substrate of Jones Creek was observed to be composed of silt. LandMark observed the flow within Jones Creek to be moderate and the clarity to be fair.

The average baseflow width of the unnamed tributary to Jones Creek is 7.00 ft (2.13 m), with an average depth of 1.00 ft (0.30 m). The substrate of the unnamed tributary was observed to be composed of silt and pebbles. LandMark observed the flow within the tributary to be moderate and the clarity to be fair. Several storm water drainage ditches flow into the unnamed tributary to Jones Creek and are located within the project area; however, no water was present in the ditches at the time of LandMark's site reconnaissance.

2.2.2 Best Usage Classification

All streams have been assigned a best usage classification by the N.C. Division of Water Quality (DWQ). The classification of Jones Creek in the project area is **C** (DEHNR, 1996). Class **C** refers to waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.00 mi (1.61 km) of the project area.

2.2.3 Water Quality

The DWQ has initiated a basin-wide approach to water quality management for each of the 17 river basins within the state. To accomplish this goal the DWQ collects biological, chemical, and physical

data that can be used in basinwide assessment and planning. All basins are reassessed every five years. Before implementation of the basinwide approach to water quality management, the Benthic Macroinvertebrate Ambient Network (BMAN) assessed water quality by sampling for benthic macroinvertebrate organisms at fixed monitoring sites throughout the state. **There is a BMAN station (DEM No. 22-50-3) located on Jones Creek at State Road 2632 in Rockingham County within 1.00 mi (1.61 km) of the project area. The station received a bioclassification rating of “good” in January 1992.**

Many benthic macroinvertebrates have life cycle stages that can last from six months to one year. Therefore, the adverse effects of a toxic spill may not be overcome until the next generation. Different taxa of macroinvertebrates have different tolerances to pollution; therefore, long-term changes in water quality conditions can be identified by population shifts from pollution sensitive to pollution tolerant organisms (and vice versa). Overall, the species present, the population diversity, and the biomass are reflections of long-term water quality conditions.

In North Carolina, point source dischargers are permitted through the National Pollutant Discharge Elimination System (NPDES) Program. Permits are required for all point source discharges. **There is no point source discharger on Jones Creek within 1.00 mi (1.61 km) of the project area.**

2.2.4 Ecological Impacts

Replacing an existing structure in the same location with a road closure during construction is usually preferred. It poses the least risk to aquatic organisms and other natural resources. Bridge replacement at a new location usually results in greater impacts. Usually, project construction does not disturb the entire right-of-way; therefore, actual impacts will be less than reported in Table 1 of Section 3.3.

Project construction may result in the following impacts to surface waters:

1. Increased sedimentation and siltation from demolition debris and/or erosion resulting from vegetation removal and soil disturbance during construction,
2. Changes in light incidence and water clarity due to increased sedimentation and vegetation removal,
3. Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction,
4. Changes in water temperature due to increased sun and wind exposure resulting from streamside vegetation removal,
5. Increased nutrient loading from the stormwater runoff of areas disturbed during construction, and/or
6. Increased input of toxic compounds from demolition, construction, toxic spills, and highway runoff.

Precautions must be taken to minimize impacts to water resources in the project area. The NCDOT's Best Management Practices (BMP) for the Protection of Surface Waters must be strictly enforced during the construction stage of the project. Guidelines for these BMPs include, but are not limited to minimizing built upon area and diverting stormwater away from surface water supply waters as much as possible. Provisions to prevent water resource contamination by toxic substances during the demolition and construction phases must also be strictly enforced.

3.0 BIOTIC RESOURCES

Biotic resources include aquatic and terrestrial ecosystems. This section describes those ecosystems encountered in the project area, as well as, the relationships between flora and fauna within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences, and past and present land uses in the project area. Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each plant and animal species described. Plant taxonomy generally follows Radford *et al.* (1968). Animal taxonomy follows Martof *et al.* (1980), Potter *et al.* (1980), and Webster *et al.* (1985). Subsequent references to the same organism will include the common name only. Fauna observed during the site visits are denoted with an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

3.1 Terrestrial Communities

Two distinct terrestrial communities are identified in the project area (Figure 2): Dry Oak-Hickory Forest and maintained/disturbed. Community boundaries within the project area are well defined as shown in Figure 2. Faunal species likely to occur within the project area will exploit all community types for shelter, foraging opportunities, and/or as wildlife corridors.

3.1.1 Dry Oak-Hickory Forest

The Dry Oak-Hickory Forest occurs throughout the entire project area with the exception of the maintained/disturbed community adjacent to the existing roadway (see Figure 2). The Dry Oak-Hickory Forest consists of mature hardwood areas, immature hardwood areas, and a scrub/shrub area. The canopy is dominated by sycamore (*Platanus occidentalis*), yellow poplar (*Liriodendron tulipifera*), short-leaf pine (*Pinus echinata*), red cedar (*Juniperus virginiana*), and white oak (*Quercus alba*) with river birch (*Betula nigra*) adjacent to Jones Creek and the unnamed tributary to Jones Creek. Dominant sapling species include sycamore, yellow poplar, red maple (*Acer rubrum*), and beech (*Fagus grandifolia*). The shrub layer consists of flowering dogwood (*Cornus florida*) and privet (*Ligustrum sp.*), with strawberry bush (*Euonymus americanus*) adjacent to Jones Creek and the unnamed tributary to Jones Creek. The herbaceous and vine layers are sparse and consist of several species of greenbrier (*Smilax sp.*), Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), and blackberry (*Rubus argutus*).

Avian species associated with the Dry Oak-Hickory Forest include field sparrow (*Spizella pusilla*), Carolina chickadee (*Parus carolinensis*), chestnut-sided warbler (*Dendroica pensylvanica*), common crow* (*Corvus brachyrhynchos*), and several species of songbirds*.

Wildlife species associated with this community type include white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), southeastern shrew (*Sorex longirostris*), eastern cottontail (*Sylvilagus floridanus*), eastern chipmunk (*Tamias striatus*), and raccoon (*Procyon lotor*).

3.1.2 Maintained/Disturbed

The maintained/disturbed community occurs along the roadside shoulders of State Road 2579 for the entire length of the project area. The maintained/disturbed community is predominantly vegetated by grass (*Festuca* sp.). Faunal species frequenting the maintained/disturbed community will include those inhabiting the Dry Oak-Hickory Forest.

3.2 Aquatic Communities

Jones Creek and an unnamed tributary to Jones Creek are aquatic communities located within the project area. Physical characteristics of a water body and the condition of the water resource influence faunal composition of aquatic communities. Terrestrial communities adjacent to a water resource also greatly influence aquatic communities. Vegetation along the banks of Jones Creek and the tributary to Jones Creek includes those species present in the Dry Oak-Hickory Forest.

Fauna associated with these aquatic communities include various invertebrate and vertebrate species. Aquatic species likely to occur in Jones Creek include gizzard shad (*Dorosoma cepedianum*), silver redhorse (*Moxostoma anisurum*), grass carp (*Ctenopharyngodon idella*), creek chub (*Semotilus atromaculatus*), eastern ribbon snake (*Thamnophis sauritus*), pickerel frog (*Rana palustris*), and two-lined salamander (*Eurycea bislineata*). Invertebrates that would be present include various species of caddisfly (Trichoptera), mayfly (Ephemeroptera), crayfish (Decapoda), dragonfly (Odonata), and damselfly (Odonata).

3.3 Habitat Summary

Construction of the subject project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. Table 1 quantifies the habitat communities within the project area.

Table 1. Habitat Within Project Area.

Community	Wetland	Upland	Totals
Dry Oak-Hickory Forest	-	0.77 ac (0.31 ha)	0.77 ac (0.31 ha)
Maintained/Disturbed	-	0.45 ac (0.18 ha)	0.45 ac (0.18 ha)
Tributary to Jones Creek	-	-	0.01 ac (0.004 ha)
Jones Creek	-	-	0.03 ac (0.01 ha)
Total	0.00 ac (0.00 ha)	1.22 ac (0.49 ha)	1.26 ac (0.50 ha)

Plant communities found within the proposed project area serve as nesting and sheltering habitat for various wildlife species. Replacing Bridge No. 84 and its associated improvements may reduce habitat for some faunal species. However, due to the size and scope of this project, it is anticipated that impacts to fauna will be minimal.

Areas modified by construction (but not paved) will become road shoulders and early succession habitat. Reduced habitat may displace some wildlife further from the roadway while attracting other wildlife by the creation of early successional habitat. Animals temporarily displaced by construction activities may repopulate areas suitable for the species.

Aquatic communities are sensitive to even small changes in their environment. Stream channelization, scouring, siltation, sedimentation, and erosion from project-related work may affect water quality and biological constituents. Although direct impacts may be temporary, environmental impacts from these construction processes may result in long term or irreversible effects.

Impacts often associated with in-stream construction include increased channelization and scouring of the streambed. In-stream construction alters the stream substrate and may remove streamside vegetation at the site. Disturbances to the substrate will produce siltation, which in excessive amounts can clog the gills and/or feeding mechanisms of benthic organisms (sessile filter-feeders and deposit-feeders), fish, and amphibian species. Benthic organisms may also be covered by excessive amounts of sediment. Some of these organisms may be slow to recover or repopulate a stream.

The removal of streamside vegetation and placement of fill material at the construction site alters the terrain. Alterations of the stream bank enhance the likelihood of erosion and sedimentation. Revegetation stabilizes and holds the soil thus mitigating these processes. Erosion and sedimentation carry soils, toxic compounds, and other materials into aquatic communities at the construction site. These processes increase turbidity and can cause the formation of sandbars at the site and downstream, thereby altering water flow and the growth of vegetation. Streamside clearing also leads to more direct sunlight penetration causing elevations in water temperatures, which may affect some species. **Based on the potential for increased sedimentation, it is recommended that silt curtains be used during construction.**

4.0 JURISDICTIONAL TOPICS

This section provides descriptions, inventories, and impact analysis pertinent to two important issues: “Waters of the United States” and rare and protected species.

4.1 Waters of the United States

Surface waters and jurisdictional wetlands fall under the broad category of “Waters of the United States”, as defined in Section 33 of the Code of Federal Register (CFR) Part 328.3. Wetlands, as defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Any action that proposes to place fill into these areas falls within the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

4.1.1 Wetlands and Surface Waters

Potential wetland communities were investigated pursuant to the 1987 Corps of Engineers *Wetlands Delineation Manual*. The three-parameter approach was used. Hydric soils, hydrophytic vegetation, and certain specific hydrologic characteristics must **all** be present for an area to be considered a wetland. **Wetlands are not present within the project area.**

Jones Creek and an unnamed tributary to Jones Creek are surface waters under Section 404 of the Clean Water Act (33 USC 1344). Jones Creek covers 0.03 ac (0.01 ha) and 80.00 lf (24.38 lm) of the project area. The unnamed tributary to Jones Creek covers 0.01 ac (0.004 ha) and 20.00 lf (6.10 lm) of the project area. Discussion of the biological, physical, and water quality aspects of all surface waters in the project area are presented in previous sections of this report.

4.1.2 Permits

Impacts to jurisdictional surface waters are anticipated from the proposed project. As a result, construction activities will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources.

Nationwide Permit 23 (33 CFR 330.5(a) (23)) is likely to be applicable for all impacts to “Waters of the United States” resulting from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded, or financed in whole or part by another federal agency or department where that agency or department has determined that pursuant to the Council on Environmental Quality regulation for implementing the procedural provisions of the National Environmental Policy Act:

- The activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and
- The office of the Chief of Engineers has been furnished notice of the agency’s or department’s application for the categorical exclusion and concurs with that determination.

This project will also require a 401 Water Quality Certification from the DWQ before the issuance of the Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to “Waters of the United States.” Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit.

4.1.3 Bridge Demolition

Bridge No. 84 has three spans totaling 53.00 ft (16.15 m) in length. The entire bridge is composed of timber. Therefore, Bridge No. 84 will be removed without dropping any of its components into “Waters of the United States”.

4.1.4 Mitigation

The COE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of “Waters of the United States,” specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

4.1.4.1 Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to “Waters of the United States.” According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE, in determining “appropriate and practicable” measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

4.1.4.2 Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to “Waters of the United States.” Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. Other practical mechanisms to minimize impacts to “Waters of the United States” crossed by the proposed project include: strict enforcement of sedimentation control BMP's for the protection of surface waters during the entire life of the project; reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams; reduction of runoff velocity; re-establishment of vegetation on exposed areas; judicious pesticide and herbicide usage; minimization of “in-stream” activity; and litter/debris control.

4.1.4.3 Compensatory Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to “Waters of the United States” have been avoided **and** minimized to the maximum extent practicable. It is recognized that “no net loss of wetlands” functions and values may not be achieved in every permit action. Appropriate and practicable compensatory mitigation may be required for unavoidable, adverse impacts that remain after all appropriate and practicable minimization has been performed. Compensatory actions often include restoration, creation, and enhancement of “Waters of the United States.” Such actions should be undertaken in areas adjacent to or contiguous to the discharge site whenever practicable. Compensatory mitigation is not usually necessary with a Nationwide Permit No. 23. **Impact thresholds for mitigation are as follows:**

- 0.10 to 1.00 ac (0.04 to 0.40 ha) of wetland impacts may require mitigation;
- 1.00 ac (0.40 ha) or more of wetland impacts will require mitigation;
- 150.00 lf (45.72 lm) or more of stream impacts will require mitigation.

4.2 Rare and Protected Species

Some populations of flora and fauna have been in, or are in, the process of decline due to either natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally protected, be subject to review by the U.S. Fish and Wildlife Service (FWS). Other species may receive additional protection under separate state laws.

4.2.1 Federally Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of April 12, 2001, the FWS lists two federally protected species for Rockingham County (Table 2). A brief description of the characteristics and habitat requirements for these species along with a conclusion regarding potential project impacts follows.

Table 2. Federally protected species of Rockingham County.

Scientific Name	Common Name	Federal Status
<i>Echinacea laevigata</i>	Smooth coneflower	Endangered
<i>Pleurobema collina</i>	James spiny mussel	Endangered

Endangered – A taxon “in danger of extinction throughout all or a significant portion of its range.”

***Echinacea laevigata* (smooth coneflower) Endangered**

Plant Family: Asteraceae

Federally Listed: December 9, 1991

The smooth coneflower was once found in all of the Atlantic Coast states from Pennsylvania to Georgia, on the Gulf Coast in Alabama, and inland in Arkansas. Populations are now limited to Virginia, North Carolina, South Carolina, and Georgia.

Smooth coneflower is a perennial herb with fleshy roots, hairless stems, and few leaves. It grows to 20.00 to 39.00 in (50.80 to 99.06 cm) in height, has a smooth stem, and few leaves. The simple leaves are smooth, with toothed edges, lance-shaped with rounded bases at the base of the stem, and smaller and elliptic at mid-stem. The leaves measure 4.00 to 8.00 in (10.16 to 20.32 cm) in length and 1.00 to 3.00 in (2.54 to 7.62 cm) in width. Flowers are light pink to purple, solitary, and 0.79 to 0.98 in (2.00 to 2.50 cm) across. Flowering occurs from May to July and fruiting occurs from June to October. Fruits are small, gray-brown, oblong, one-seeded, and usually four-angled.

The smooth coneflower grows in meadows, open woodlands, glades, cedar barrens, roadsides, power line rights-of-way, clearcuts, and dry limestone bluffs. Plants usually grow in soil derived from

calcareous parent material. Optimal sites occur in areas with abundant sunlight and little competition from other herbaceous plants. Natural fires and large herbivores are important to the maintenance of the smooth coneflower habitat.

BIOLOGICAL CONCLUSION:

UNRESOLVED

The open woodlands, roadsides, and clearcuts required by the smooth coneflower are present in the project area. A plant-by-plant survey was not conducted for this species nor were any observed during the March 11, 2002 site investigation. Additionally, a review of the NHP database on March 6, 2002 revealed no records of existing populations of the smooth coneflower within 1.00 mi (1.61 km) of the project area. An additional field survey will be conducted between May and July during the optimal survey window for the smooth coneflower. A letter will be attached as an addendum to this report after the completion of the survey for the smooth coneflower.

***Pleurobema collina* (James spiny mussel) Endangered**

Animal Family: Unionidae

Date Listed: 1988

The James spiny mussel is found in the James River basin, Virginia, and West Virginia.

This mussel is usually found in a variety of substrates including sand, gravel, cobble, and mixed materials on the bottoms of streams and rivers. They generally require a slow to moderate current, and clean, well-oxygenated water. The James spiny mussel lives in a variety of environments ranging from large rivers to shallow streams.

The James spiny mussel has an oblong shell approximately 2.00 in (5.08 cm) in size. This mussel is one of three freshwater mussels where prominent spines can be found on juvenile shells. The adults have a dark brown shell and the spines are typically absent or reduced.

BIOLOGICAL CONCLUSION:

UNRESOLVED

The NCDOT will conduct a biological assessment to determine any potential impacts to this species due to construction of the proposed bridge. The NHP database of rare species and unique habitats reviewed on March 6, 2002 revealed no records of existing populations of the James spiny mussel within 1.00 mi (1.61 km) of the project area.

4.2.2 Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally listed or proposed as threatened or endangered. However, the status of these species is subject to change, and therefore should be included for consideration. FSC are defined as a species that is under consideration for listing but for which there is insufficient information to support listing. In addition, organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the NHP list of Rare Plant and Animal Species, are afforded state protection under the N.C. State Endangered Species Act and the N.C. Plant Protection and Conservation Act of 1979.

There are two FSC listed by the FWS for Rockingham County. A survey for these species was not conducted during the site visit, nor were any of these species observed. A review of the NHP database of rare species and unique habitats on March 6, 2002 revealed no FSC within 1.00 mi (1.61 km) of the project area.

Table 3. Federal Species of Concern for Rockingham County.

Scientific Name	Common Name	NC Status	Habitat
<i>Lotus helleri</i>	Heller's trefoil	SR-T	Yes
<i>Lasmigona subviridis</i>	Green floater	E	Yes

"E"-- A taxon in danger of extinction throughout all or a significant portion of it's range.

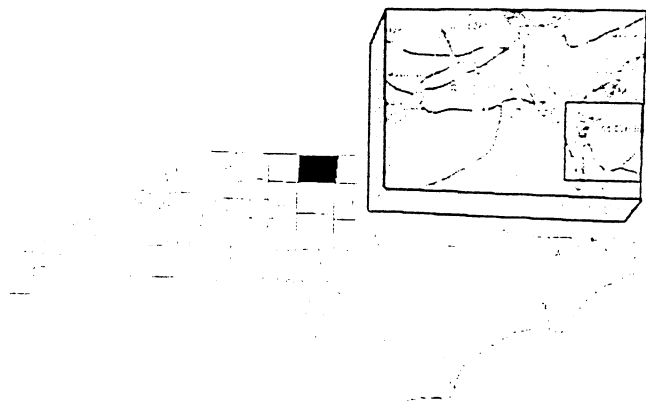
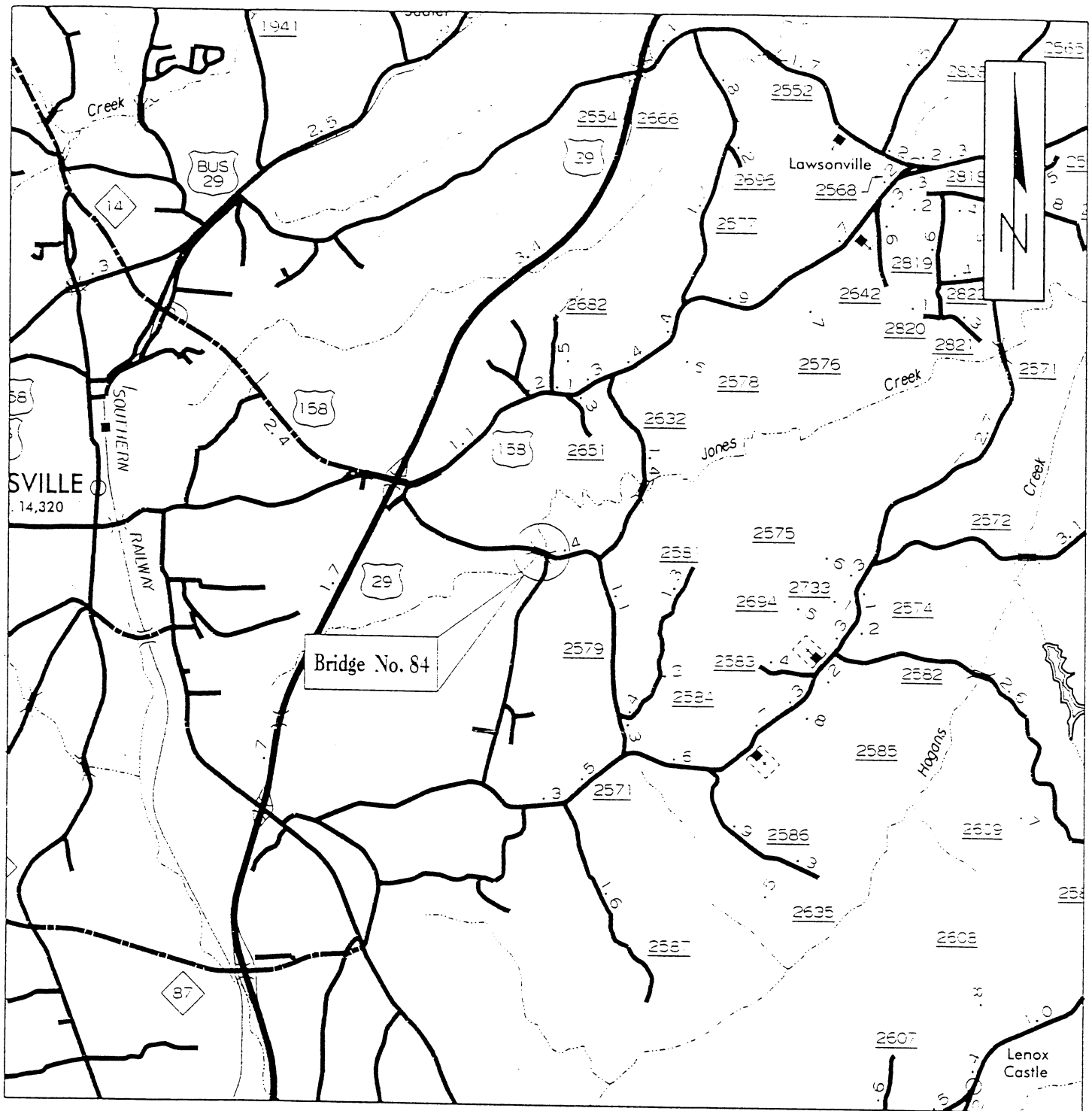
"T" -- A taxon likely to become extinct within the foreseeable future throughout all or a significant portion of it's range.

"SR"--A Significantly Rare species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation, or disease. The species is generally more common elsewhere in its range, occurring peripherally in North Carolina.

5.0 REFERENCES

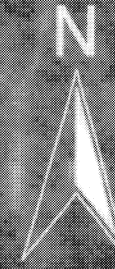
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	<p>North Carolina Department Of Transportation Division of Highways Project Development and Environmental Analysis Branch</p>
<p>Rockingham County Replace Bridge No. 84 on SR 2579 Over Jones Creek B-3696</p>	
<p>SCALE: 1 in = 1 mi Figure 1</p>	

TIP B-3696
Habitat Within
Project Area



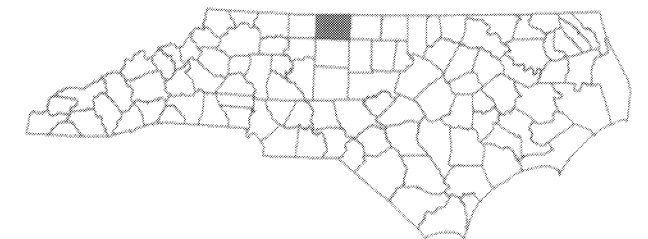
Bridge No. 84

Jones Creek








SR 2588

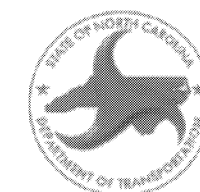
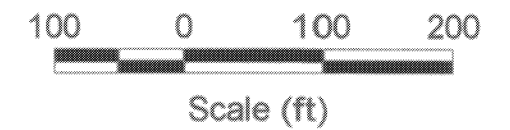
SR 2579

Figure 2 TIP B-3696
Habitat Within Project Area
Roanoke River Basin
Rockingham County, NC



Legend

-  Project Area
-  Dry Oak-Hickory Forest (mature)
-  Dry Oak-Hickory Forest (immature)
-  Dry Oak-Hickory Forest (scrub/shrub)
-  Maintained/Disturbed
-  Tributary to Jones Creek
-  Jones Creek



LANDMARK
DESIGN GROUP